

FINAL
RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT
*Radiological Surveys of Buildings and Ground Surfaces, and
Storm Drain and Sanitary Sewer Removal
Parcel D-1, Phase 1
Hunters Point Naval Shipyard
San Francisco, California*

*Contract Number: N62473-08-D-8822
Task Order: 0006*

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January 2014

Submitted to:



Base Realignment and Closure
Program Management Office West Naval Facilities Engineering Command
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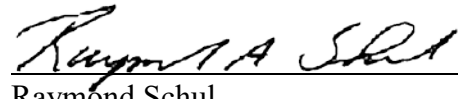
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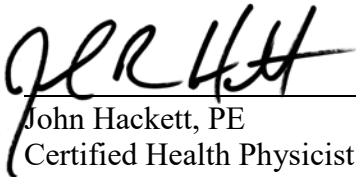
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| Appendix P | Response to Comments Document |

Acronyms and Abbreviations

| | |
|----------------------------|--|
| ¹³⁷ Cs | cesium-137 |
| ²²⁶ Ra | radium-226 |
| ²³² Th | thorium-232 |
| ²³⁹ Pu | plutonium-239 |
| ⁹⁰ Sr | strontium-90 |
| ACM | asbestos-containing materials |
| AEC | Atomic Energy Commission |
| ALARA | As Low As Reasonably Achievable |
| AM | <i>Final Removal Action Action Memorandum—Revision 2006, Hunters Point Shipyard, San Francisco, California</i> |
| ANL | Argonne National Laboratory |
| APP/SSHP/RPP | Accident Prevention Plan/Site Safety and Health Plan/Radiation Protection Plan |
| Bay | San Francisco Bay |
| bgs | below ground surface |
| BMP | best management practices |
| CDHS | California Department of Health Services |
| CDPH | California Department of Public Health |
| CHP | Certified Health Physicist |
| CIP | cast iron pipe |
| CMP | corrugated metal pipe |
| cpm | counts per minute |
| CSM | Conceptual Site Model |
| CSO | Caretaker Site Office |
| CTO | contract task order |
| cy | cubic yard |
| D-1 Demolition Plan | <i>Final Demolition Plan for the Gun Mole Pier and South Pier Buildings, Hunters Point Shipyard, San Francisco, California</i> |
| D-1 Execution Plan | <i>Final Execution Plan for the Parcel D-1 Radiological Remediation and Support, Hunters Point Shipyard, San Francisco, California</i> |
| D-1 Radiological Work Plan | <i>Final Parcel D-1 Radiological Work Plan, Hunters Point Shipyard, San Francisco, California</i> |
| D-1 Sewer Design Plan | <i>Final Design Plan for the Parcel D-1 Sanitary Sewer and Storm Drain Removal, Hunters Point Shipyard, San Francisco, California</i> |
| D-1 Sewer Work Plan | <i>Final Project Work Plan, Parcel D-1 Storm Drain and Sanitary Sewer Removal, Hunters Point Shipyard, San Francisco, California</i> |
| DCGL | derived concentration guideline |
| DoD | U.S. Department of Defense |
| dpm/100 cm ² | disintegrations per minute per 100 square centimeters |
| DTSC | California Department of Toxic Substances Control |

Acronyms and Abbreviations (continued)

| | |
|-------------------|---|
| ELCR | excess lifetime cancer risk |
| EMS | Environmental Management Systems, Inc. |
| EP | extraneous pipe |
| EPA | U.S. Environmental Protection Agency |
| ESU | excavated soil unit |
| FSS | final status survey |
| ft ² | square feet |
| GMP | Gun Mole Pier |
| GPS | global positioning system |
| HPNS | Hunters Point Naval Shipyard |
| HRA | <i>Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939—2003, Hunters Point Shipyard, San Francisco, California</i> |
| IR | Installation Restoration |
| IRP | Installation Restoration Program |
| LLRW | low-level radioactive waste |
| m ² | square meter |
| MARSSIM | <i>Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), NUREG-1575, Revision 1</i> |
| MDA | minimum detectable activity |
| MDL | method detection limit |
| mph | mile per hour |
| mrem/yr | millirem per year |
| NaI | sodium iodide |
| NAVSEA | Naval Sea Systems Command |
| Navy | U.S. Department of the Navy |
| NCP | National Oil and Hazardous Substances Contingency Plan |
| NRC | U.S. Nuclear Regulatory Commission |
| NRDL | Naval Radiological Defense Laboratory |
| pCi/g | picocuries per gram |
| PNNL | Pacific Northwest National Laboratory |
| PQCM | Project Quality Control Manager |
| PVC | polyvinyl chloride |
| RACR | removal action completion report |
| Radiological RACR | radiological removal action completion report |
| RAO | removal action objective |
| RASO | Radiological Affairs Support Office |
| RCA | Radiologically Controlled Area |
| RCP | Radiological Control Plan |
| RCS | Radiological Controls Supervisor |
| ROC | radionuclide of concern |
| ROICC | Resident Officer in Charge of Construction |
| RPM | Remedial Project Manager |

Acronyms and Abbreviations (continued)

| | |
|------------------|---|
| RSO | Radiological Safety Officer |
| RSY | radiological screening yard |
| SAP | sampling and analysis plan |
| SD | storm drain |
| Shaw | Shaw Environmental & Infrastructure, Inc. |
| Shaw E&I | Shaw Environmental & Infrastructure, Inc., a CB&I company |
| Sr | strontium |
| SS | sanitary sewer |
| SU | survey unit |
| SUPR | Survey Unit Project Report |
| SUPRA Revision 3 | <i>Final Survey Unit Project Reports Abstract, Revision 3, Sanitary Sewer and Storm Drain Removal Project, Hunters Point Shipyard, San Francisco, California</i> |
| SUPRA SSSD | <i>Final Survey Unit Project Reports Abstract for Sanitary Sewer and Storm Drain Removal Conducted After January 1, 2011, Hunters Point Shipyard, San Francisco, California</i> |
| SWPPP | stormwater pollution prevention plan |
| T&D | transport and disposal |
| TCRA | time-critical removal action |
| TEDE | total effective dose equivalent |
| TES | Terranear Energy Solutions |
| TSP | task-specific plan |
| TtEC | Tetra Tech EC, Inc. |
| UC | utility corridor |
| VCP | vitriified clay pipe |
| VSP | visual sampling plan |
| WA | work area |
| WV | work variance |

1.0 Introduction

This radiological removal action completion report (Radiological RACR) describes radiological surveys and remediation that were performed to achieve radiological free-release of radiologically impacted areas within a specific section of Parcel D-1 at Hunters Point Naval Shipyard (HPNS), San Francisco, California (Figure 1). Shaw Environmental & Infrastructure, Inc. (Shaw), a CB&I company (Shaw E&I), was contracted by the U.S. Department of the Navy (Navy) to perform these activities at HPNS for the Base Realignment and Closure Program Management Office West under Naval Facilities Engineering Command Southwest Remedial Action Contract No. N62473-08-D-8822, Contract Task Order (CTO) 0006. The Radiological Affairs Support Office (RASO) served as technical advisor to the Navy. The work described in this Radiological RACR is Phase 1 of two separate work efforts to complete the radiological release of Parcel D-1.

This Radiological RACR was prepared to summarize the results of the radiological work performed within Parcel D-1 to protect the public health and welfare, and the environment from actual or potential releases of radiological contaminants and to document the achievement of the radiological removal action objective identified in *Final Basewide Radiological Removal Action Action Memorandum—Revision 2006, Hunters Point Shipyard, San Francisco, California* (AM; Navy, 2006). Except in relation to reuse as potential backfill material or waste characterization for disposal of excavated soil derived from removal of the Parcel D-1 storm drain (SD) and sanitary sewer (SS) systems, this Radiological RACR does not address chemical contamination and does not include or affect any other designated HPNS parcels. Neither sample collection activities nor laboratory analyses were performed during the Parcel D-1 survey and remediation activities to meet any chemical remediation goals.

Environmental investigation and remediation at HPNS was performed under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and the National Oil and Hazardous Substances Contingency Plan (NCP). Under Executive Order 12580 the Navy was the lead agency for implementing the IRP and removal actions, including CTO 0006. The U.S. Environmental Protection Agency (EPA) was the lead regulatory agency. Additional regulatory oversight was provided by the Regional Water Quality Control Board, San Francisco Bay Region; the California Department of Public Health (CDPH); and other agencies. Radiological remediation at HPNS was overseen by the Navy with technical input from the RASO and review by the CDPH.

The Final Historical Radiological Assessment, Volume II, History of the Use of General Radioactive Materials, 1939—2003, Hunters Point Shipyard, San Francisco, California (HRA; Naval Sea Systems Command [NAVSEA], 2004), identified the following features in Parcel D-1 as radiologically impacted:

- Building 274
- Building 383 Area
- Former Building 313, 313A, and 322 Sites
- Gun Mole Pier (GMP)
- SS and SD systems within Parcel D-1

The Navy also identified the South Pier as radiologically impacted due to its associated ship berths. The HRA does not specifically identify South Pier as a separate radiologically impacted area; however, the land portions of the berths associated with South Pier (Berths 10 through 13) are. Berths 10 through 13 were identified as potentially radiologically impacted in the HRA in the discussion of Parcel F (NAVSEA, 2004). Radiological impacts to the berths may have resulted from berthing of Operations Crossroads ships, berthing of the YGN-73 (radioactive waste disposal barge), and usage by the Naval Radiological Defense Laboratory (berthing of experimental barges and YAGs-39 and -40). The physical features, shown on Figure 2, were radiologically surveyed and remediated as necessary to achieve free-release. The HRA identified radionuclides of concern (ROCs) for the following features (Table 1):

1. Building 274: cesium-137 (^{137}Cs), radium-226 (^{226}Ra), and strontium-90 (^{90}Sr)
2. Building 383 Area: ^{137}Cs , ^{226}Ra , ^{90}Sr , and plutonium-239 (^{239}Pu)
3. Former Building 313, 313A, and 322 Sites: ^{137}Cs , ^{226}Ra , ^{90}Sr , ^{239}Pu , and thorium-232 (^{232}Th)
4. GMP: ^{137}Cs , ^{226}Ra , ^{90}Sr , and ^{239}Pu
5. South Pier: ^{137}Cs , ^{226}Ra , ^{90}Sr , and ^{239}Pu
6. The SS and SD systems: ^{137}Cs , ^{226}Ra , and ^{90}Sr

The HPNS operational history and subsequent investigative data indicated that Parcel D-1 contained radioactive contamination that required a response action. This decision was documented in the AM (Navy, 2006), which was created to direct time-critical removal actions (TCRAs) within areas throughout the base that contain localized radioactive contamination. Radiological release criteria for the ROCs were established in the AM. Radiological release

criteria are presented in Table 2 and radiological release criteria for the SD and SS system are presented in Table 3.

This Radiological RACR summarizes the activities performed to support radiological free-release at Parcel D-1. These activities included:

- Removing SS and SD piping, which included pipe and all components (manholes, drop inlets, clean-outs, lift stations, etc.), and soil from above and immediately adjacent to and below the piping
- Delivering excavated soil from the SS and SD trenches to HPNS Radiological Screening Yards (RSYs) operated by the Basewide Radiological Contractor (Tetra Tech EC, Inc. [TtEC])
- Surveying the excavated SS and SD piping for radiological release or characterizing them as wastes for coordinated hand-off to Navy's low-level radioactive waste (LLRW) contractor (Environmental Management Systems, Inc. [EMS], prior to November 2011, and after November 2011, their contractual successor, Terraneer Energy Solutions [TES] for LLRW) for radiological waste, or the Navy's basewide transport and disposal (T&D) contractor (Innovative Technical Solutions, Inc.) for nonradiological waste
- Performing radiological surveys in the SS and SD trenches and delivering trench wall and bottom media samples to the HPNS on-site radiological laboratory operated by the Basewide Radiological Contractor for radiological analyses to support free-release or additional removal of excavated soil for trench survey units (SUs)
- Coordinating the return of data from the HPNS on-site radiological laboratory and tracking of excavated soil with the Basewide Radiological Contractor
- Performing final status surveys (FSSs) of the SS and SD trenches
- Managing field data from characterization and removal activities and data from the HPNS on-site radiological laboratory
- Submitting survey unit project reports (SUPRs) for trench SUs and excavated survey units (ESUs)
- Removing asphalt, railroad ties, and railroad rails from the GMP and South Pier
- Managing asphalt on the GMP and South Pier as potentially radiologically impacted
- Performing structural engineering surveys, asbestos and lead paint surveys and abatements, and demolition and packaging or staging and/or disposal of building debris for the following buildings of the GMP: 370, 375 (also known as 360; various HPNS maps refer to this structure as 375 or 360), 376, 377, 378, 379, 380, 383, 384, and 385, and Building 311 on the South Pier

- Performing radiological characterization surveys, radiological remediation and FSSs, and generating FSS reports for Building 274; Former Building 313, 313A, and 322 Sites; the Building 383 Area footprint; the GMP; and the South Pier

Shaw E&I holds U.S. Nuclear Regulatory Commission (NRC) Materials License No. 20-31340-0, expiration date January 31, 2019, and performed CTO 0006 work under that authority. Shaw coordinated the radiological screening of potentially radioactive excavated soil with the Basewide Radiological Contractor and coordinated the management of radioactive wastes (i.e., SS, SD, asphalt, concrete, and soil) with EMS and their contractual successor: TES. TtEC, EMS, and TES are Navy HPNS contractors providing specific radiological services under their own NRC licenses. The majority of T&D of nonradiological waste was conducted under a separate HPNS basewide waste disposal contract overseen by the Navy. Waste disposal was not included as part of CTO 0006.

1.1 Hunters Point Naval Shipyard Location and Description

The HPNS site lies entirely within the corporate boundaries of the County of San Francisco, at the southeast corner of the City of San Francisco, California (Figure 1). The site encompasses approximately 848 acres including about 416 acres on land situated on a 2-mile-long promontory projecting southeastward into the San Francisco Bay (Bay). The remaining 432 acres constitute the adjacent offshore areas.

In 1992, the Navy divided HPNS into five contiguous parcels (A through E) to expedite remedial action activities and land reuse. Parcel F was designated in 1996 and encompasses the offshore areas. The Navy designated the landfill area in Parcel E as Parcel E-2 in September 2004. Subsequently, Parcel A was transferred to the City and County of San Francisco for development. In July 2008, the Navy divided HPNS into eight parcels (B, C, D-1, D-2, E, E-2, G, and F) and three utility corridors (UCs) (UC 1, UC2, and UC3) (Figure 1). Parcels B, C, D-1, D-2, E, E-2, and G and UC1, UC2, and UC3 encompass the onshore areas.

Based on the HPNS radiological operational history described in the HRA (NAVSEA, 2004) and site-specific investigative data, the Navy determined that potential low-level radioactive contamination in soil and debris at HPNS required a response action. This decision is documented in the AM (Navy, 2006). The AM included revisions and updates to implement the recommendations of the HRA.

1.2 Parcel D-1 Site Description

Parcel D-1 is located in the southeastern portion of HPNS (Figure 1) and was constructed entirely of fill between approximately 1942 and 1947. According to the City and County of San Francisco redevelopment plan, Parcel D-1 will be zoned for industrial and maritime

industrial uses. Most of Parcel D-1 was formerly part of the industrial support area and used for shipping, ship repair, and office and commercial activities.

The entire surface of Parcel D-1 is fill. The fill is up to 110 feet below existing grade (U.S. Coast and Geodetic Survey, 1903 and ENGEO, 2009). The fill is significantly shallower north toward E Street and south toward Mahan Street and H Street. Parcel D-1 has an average elevation of approximately 9 feet above sea level and approximately 7,085 lineal feet of constructed, vertical-walled shoreline that is effectively all ship berth (Naval Civil Engineering Command, 1949).

Approximately two-thirds of the parcel surface was covered with concrete or asphalt. Compacted gravel-sand fill constitute the remaining parcel surface. The GMP and South Pier extend southeastward into the Bay and are located by the South Slip (Naval Civil Engineering Command, 1949).

The GMP, and possibly South Pier, was used for berthing contaminated ships following atomic weapons testing, radioactive waste management activities, and decontamination tests performed by the Navy Radiological Defense Laboratory (NRDL) and other maritime use.

Parcel D-1 contains IRP sites. Installation Restoration (IR) sites indicated to have potential soil and/or groundwater chemical impact and their presence affects the management and reuse of excavated soil under CTO 0006 (Figure 2).

Parcel D-1 was divided into six work areas (WAs) to facilitate the radiological clearance of buildings, surfaces, and the SD and SS system. WAs 13, 24, 25, 28, 29 and 30 were created to be compatible with the nomenclature used by the Navy's Basewide Radiological Contractor to simplify administration of the work. The IR sites and WAs are shown on Figure 2.

1.3 Current and Future Land Use

Currently, Parcel D-1 areas not radiologically released under this radiological removal action are scheduled to be transferred to the Parcel D-1 Phase II Remediation Contractor for additional radiological remediation efforts within WAs 24 and 25.

Following this removal action, and after other additional remedial activities are completed, portions of HPNS Parcel D-1 will be transferred to the City and County of San Francisco for conversion to nondefense reuse. The City and County of San Francisco's reuse plan identifies a wide range of planned reuse opportunities across HPNS, including residential, commercial, mixed use (residential/commercial), industrial, maritime, and open space.

1.4 Project Schedule

The project schedule, as modified due to field conditions, is included as Figure 3. The project duration was extended compared to the original schedule for several reasons including significant weather delays and scope adjustments.

1.5 Report Organization

The purpose of this Radiological RACR is to describe and summarize the results of the radiological work performed in Parcel D-1 to protect the public health and welfare, and the environment from actual or potential releases of radiologic contaminants and document the results of the implemented TCRA and FSS activities. The radiological work performed for Parcel D-1 included documenting and summarizing the SD and SS removal activities as well as the radiological work completed for impacted South Pier and GMP areas, Building 274, Building Area 383 and Former Building 313, 313A, and 322 Sites.

This Radiological RACR is organized as follows:

- **Section 1.0, “Introduction”**—Section 1.0 provides project information including descriptions of Parcel D-1 within the context of HPNS, current and future land use of the property, fieldwork photographic documentation, and the purpose and organization of the Radiological RACR document.
- **Section 2.0, “Background”**—Section 2.0 presents an abbreviated history of the SD and SS systems, discusses the transport of radionuclides at HPNS, identifies the removal action objectives (RAOs) and remediation goals, and summarizes the various documents that support the radiological work performed on Parcel D-1.
- **Section 3.0, “Parcel D-1 Overview”**—Section 3.0 provides an overview of the FSS activities for the radiologically impacted buildings and structures as well as former area and building sites, including the South Pier and GMP. This section summarizes the procedures for performance of the work activities, identifies those activities common to each of the buildings and sites, and discusses the IR Program sites associated with Parcel D-1.
- **Section 4.0, “Work Area 24”**—Section 4.0 summarizes the SD and SS removal activities performed in WA 24 for Trench SUs 250, 251, 252, 253, 254, 255, 256, 257, 259, 261, 264, 265, 272, 273, 274, and 277 and the FSS activities for the Former Building 313, 313A, and 322 Sites and Building 274.
- **Section 5.0, “Work Area 25”**—Section 5.0 summarizes the SD and SS removal activities performed in WA 25 for Trench SU 283.
- **Section 6.0, “Work Area 28”**—Section 6.0 summarizes the SD and SS removal activities performed in WA 28 for Trench SUs 258, 262, 270, 271, 276, 278, 279, 280, 281, 282, and the FSS activities for the Building 383 Area and GMP.

- **Section 7.0, “Work Area 29”**—Section 7.0 summarizes the SD and SS removal activities performed in WA 29 for Trench SUs 266, 267, 268, 269, 275, and 276.
- **Section 8.0, “Work Area 30”**—Section 8.0 summarizes the SD and SS removal activities performed in WA 30 for Trench SUs 260 and 263, and the FSS activities for South Pier.
- **Section 9.0, “Site Restoration and Temporary Swale Construction”**—Section 9.0 describes the site restoration activities completed for Parcel D-1 including the installation of the temporary swale system and stormwater outfalls.
- **Section 10.0, “Community Relations Activity”**—Section 10.0 discusses the community relations efforts performed during this TCRA.
- **Section 11.0, “Removal Action Costs”**—Section 11.0 presents the costs for this removal action.
- **Section 12.0, “Conclusions and Recommendations”**—Section 12.0 presents the conclusions and recommendations.
- **Section 13.0, “References”**—Section 13.0 includes a list of documents used to compile this Radiological RACR.
- **Appendices A through P:**
 - Appendix A, “Kick-off Meeting Agenda”
 - Appendix B, “Air Monitoring Report”
 - Appendix C, “As-Built Drawings”
 - Appendix D, “Work Variances”
 - Appendix E, “Completion Inspection Checklists”
 - Appendix F, “Photographic Log”
 - Appendix G, “Data Validation Packages”
 - Appendix H, “Work Area 24 Report Index”
 - Appendix I, “Work Area 25 Report Index”
 - Appendix J, “Work Area 28 Report Index”
 - Appendix K, “Work Area 29 Report Index”
 - Appendix L, “Work Area 30 Report Index”
 - Appendix M, “Radiological Data for Sediment Samples Collected from Parcel D-1 Piping”

- Appendix N, “Radiological Unrestricted Release Recommendations for Parcel D-1 (Phase 1)”
- Appendix O, “Clean Import Fill Data”
- Appendix P, “Response to Comments Document”

2.0 Background

This section provides a brief site history, discussion of the HPNS Conceptual Site Model (CSM), and RAOs and remediation goals. Also included are brief descriptions of the supporting documents and reports that guided the Parcel D-1 SD and SS and building/site FSS work activities.

2.1 History

The Navy obtained ownership of HPNS for shipbuilding, repair, and maintenance in 1940. HPNS began using radioactive materials in shipyard operations and NRDL research projects in the early 1940s. Operations at HPNS included ship decontamination, repair, and dismantling activities that generated radium dial and sandblast grit waste streams. In addition, the Navy managed a waste disposal program that included the removal of radioactive materials from HPNS. Between 1946 and 1947, HPNS operations included decontamination activities on ships used during OPERATION CROSSROADS nuclear weapons tests. NRDL activities and projects involved research into decontamination methods, personnel protection, development of radiation detection instrumentation, effects of radiation on living organisms and natural and synthetic materials, and experimentation in decontamination methodologies. The NRDL research projects ended in 1969 and the associated buildings were decontaminated and cleared for unrestricted reuse based on the standards in place at that time. The Navy deactivated HPNS operations in 1974 and the property remained largely unused until 1976. HPNS was leased to Triple A Machine Shop, Inc., a private ship repair company, from 1976 to 1986 when its tenancy was terminated. The Navy resumed its occupancy of HPNS in 1987.

The present-day configuration of the SD and SS systems at HPNS is the result of an evolutionary process. These systems were originally designed and built in the 1940s as a combined system, using the same conveyance piping and 40 separate discharge outfalls into the Bay. This combined system grew in sections from the 1940s to its maximum size in 1958, when it underwent the first in a series of separation projects. The purpose of the separation projects was to provide for installation of dedicated SS piping and pump stations that would discharge SS effluent off site to a publicly owned treatment plant operated by the City and County of San Francisco. A sewage lift station was constructed specifically for conveyance of much of the sanitary sewage; however, stormwater flows from heavy rains would overwhelm the sewage lift station, and much of the sewage and stormwater diverted to various existing outfalls into the Bay (Navy, 2008).

Separation of the SD and SSs involved installation of dedicated SS collection piping or diversion structures within the combined system. Twenty-eight Bay outfalls were converted for exclusive

use as stormwater outlets, while 12 continued to serve as combined outlets. In 1973, the second separation project was undertaken including the removal of some of the stormwater outfalls from the South Basin area, just offshore from the Parcel E shoreline. The last of the separation projects was completed in 1976 and involved the installation of additional dedicated SS piping. Complete separation of the combined systems was never achieved, and subsequent inspections revealed that cross-connections may still exist. Due to the evolutionary nature of the separation process, radiological contamination from the same sources may have impacted SD and SS systems piping and other components.

As a result of the historical radiological operations at HPNS, some buildings, SD and SS lines, soil, debris, and slag material have indicated the potential presence of low-level radioactive contamination. Hazardous materials also have been found at HPNS. Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and as amended by Superfund Amendments and Reauthorization Act of 1986, HPNS was placed on the National Priorities List in 1989.

2.2 Conceptual Site Model

Radioactive material consists of radionuclides that are unstable and undergo spontaneous transformations by releasing energy until a stable state is reached. This transformation process, or radioactive decay, is usually accompanied by the emission of charged particles (e.g., alpha and beta particles) or gamma rays. The radionuclides potentially present at HPNS likely were the result of:

- Burial along with excavated fill materials while increasing the footprint of HPNS
- Residue from decontamination of ships or workers
- Residual contamination as a result of NRDL experiments or tests in structures or land areas
- Residual contamination from shipyard operations
- Release into SSs and SDs

The CSM is based on the supposition that radioactive materials likely were discharged from numerous locations throughout HPNS into the SD and SS systems and may have been released into surrounding soil during the course of normal operations and maintenance or repair activities (Navy, 2008). Manholes at HPNS have been found to be constructed of concrete and/or brick and appeared to be porous, likely resulting in the transport of contamination into the surrounding soil. Piping at HPNS generally was composed of:

- Concrete
- Vitreous clay pipe (VCP)
- Cast iron pipe (CIP)
- Steel
- Perforated metal
- Polyvinyl chloride (PVC) plastic
- Concrete-encased VCP

Typically, the pipe sections were connected at HPNS by unsealed slip fittings at joints. Some leakage from the piping was anticipated when the SD and SS systems were installed. Historical information indicates that the SD and SS systems were often cleaned by power washing that may have forced radiological contamination out of the piping and into the surrounding soil. The most recent power-washing event was performed at HPNS in 1999. Power washing of these old sewer systems may easily have caused further cracks or breaks in the piping and subsequent migration of contamination into the surrounding soil. The migration and extent of radiological soil contamination at HPNS likely depended on how and where releases from the SD and SS systems occurred.

The HPNS SD and SS removal actions performed throughout Parcels B, C, D-2, G, and UC1, UC2, and UC3 support the accuracy of the CSM. Similar types of fill materials were found in the excavated trenches and waste materials were not discovered during excavation. Identified radiological contamination has been found primarily in excavated soil at HPNS. There has been little indication of historical spills or accidental releases based on the historical research performed and radiological site investigations (Navy, 2008).

2.3 Removal Action Objectives and Remediation Goals

The RAO for this removal action were to implement the AM (Navy, 2006) and protect public health and welfare and the environment, which are consistent with the NCP requirements in Title 40 Code of Federal Regulations, Part 300.415(b)(2) (Shaw, 2010a). The work objective was to achieve unrestricted free-release for all areas and features identified within Parcel D-1 as

radiologically impacted by the HRA (NAVSEA, 2004). The key steps implemented under CTO 0006 were as follows:

- Developed and obtained approval of work plans, a design plan, and task-specific plans (TSPs) to guide the work. The TSPs governed the survey and release of all nonsewer radiologically impacted areas and features.
- Performed characterization surveys and radiological remediation/removal, support surveys and FSSs at radiologically impacted areas and features, and supported/coordinated waste management, sample analysis and reporting, soil tracking, and RASO concurrences for excavated soil and other wastes.
- Completed FSS reports and completion report documents for concurrence of unrestricted free-release by the Navy Remedial Project Manager (RPM), RASO, the City and County of San Francisco, and the CDPH where appropriate.

The release criteria necessary to achieve the objectives of free-release are shown in Table 2.

2.4 Supporting Documents Summary

The following subsections summarize the relevant supporting work plans and other documents necessary to facilitate and complete the radiological removal action and FSS activities associated with Parcel D-1. Each of these supporting documents was incorporated by reference into this Radiological RACR and is available for review through the Environmental Restoration Program Record File.

2.4.1 Final Execution Plan for the Parcel D-1 Radiological Remediation and Support

All work conducted for the Parcel D-1 impacted buildings/structures and former building sites was outlined by the *Final Execution Plan for the Parcel D-1 Radiological Remediation and Support, Hunters Point Shipyard, San Francisco, California* (D-1 Execution Plan; Shaw, 2010a).

The D-1 Execution Plan is a stand-alone document and is supported and implemented by four additional stand-alone documents:

- *Final Parcel D-1 Radiological Work Plan, Hunters Point Shipyard, San Francisco, California* (D-1 Radiological Work Plan; Shaw, 2010b)
- *Final Project Work Plan, Parcel D-1 Storm Drain and Sanitary Sewer Removal, Hunters Point Shipyard, San Francisco, California* (D-1 Sewer Work Plan; Shaw, 2010c)
- *Final Design Plan for the Parcel D-1 Sanitary Sewer and Storm Drain Removal, Hunters Point Shipyard, San Francisco, California* (D-1 Sewer Design Plan; Shaw, 2010d)
- *Final Demolition Plan for the Gun Mole Pier and South Pier Buildings, Hunters Point Shipyard, San Francisco, California* (D-1 Demolition Plan; Shaw, 2010e)

The D-1 Execution Plan (Shaw, 2010a) is supported by the following appendices within the Execution Plan:

- The Accident Prevention Plan/Site Safety and Health Plan/Radiation Protection Plan (APP/SSHP/RPP), as Appendix A
- The Stormwater Pollution Prevention Plan (SWPPP), as Appendix B
- The Construction Quality Control Plan, as Appendix C
- The Traffic Control Plan, as Appendix D
- The State Historic Preservation Office notification letter, as Appendix E
- The Waste Management Plan, as Appendix F

This D-1 Execution Plan (Shaw, 2010a) also established that two sampling and analysis plans (SAPs) were used during the performance of D-1 work activities:

- The SAP appended to the D-1 Sewer Work Plan (Shaw, 2010c) guided SD and SS removal sampling and analyses within radiologically impacted sites identified in the HRA (NAVSEA, 2004)
- The SAP appended to the D-1 Radiological Work Plan (Shaw, 2010b) guided radiological survey and release sampling and analyses of all features (other than the SD and SS systems)

2.4.2 Parcel D-1 Radiological Work Plan

The radiological work conducted for the Parcel D-1 impacted buildings/structures and former building sites and other work control procedures were performed in accordance with the D-1 Radiological Work Plan (Shaw, 2010b). This document provided guidance for the following:

- Radiological training
- Various work control procedures
- Radiological survey types and classifications
- Survey planning and implementation
- Results assessment
- Release criteria and investigation levels
- Field and laboratory instruments
- Decontamination and remediation

- Radioactive materials management
- Quality assurance and control

The procedures and methodologies outlined in the D-1 Radiological Work Plan (Shaw, 2010b) were applicable to the work performed for the radiologically impacted buildings and former building sites.

2.4.3 Project Work Plan, Parcel D-1 Storm Drain and Sanitary Sewer Removal

The Parcel D-1 work activities were performed primarily in accordance with the D-1 Sewer Work Plan (Shaw, 2010c). The D-1 Sewer Work Plan presented the overall scope and approach for SD and SS removal and radiological survey and release of the excavated trench areas at HPNS.

The general approach to removing and radiologically surveying the SD and SS lines described in the D-1 Sewer Work Plan (Shaw, 2010c) was to:

- Remove any nonsoil surface cover
- Excavate soil
- Remove piping
- Plug open pipes left in place during the removal process to prevent fluids from entering or exiting pipes
- Conduct ex situ radiological screening and sampling of the piping
- Conduct FSSs of the excavated soil and excavation trenches

Following an evaluation of the results of these activities and the removal of any identified radiological contamination, the trench excavations were backfilled and the site restored.

The D-1 Sewer Work Plan (Shaw, 2010c) provided the procedures or references to procedures that contained the methodologies for performing the SD and SS removal actions including:

- Radiological control plan
- FSSs
- Field implementation
- Waste management plan
- Environmental protection plan
- SAP

- Project quality control plan
- SWPPP

In accordance with the D-1 Sewer Work Plan (Shaw, 2010c), most SD and SS piping within each WA were to be removed, although piping may be left in place to be addressed at a later date and limited piping may be left in place permanently. Specifically, piping laterals originating at nonradiologically impacted buildings would only be removed within the first 10 feet of their union with a main trunk line. If radiological contamination was not present in this segment of the line, the exposed ends of the lateral were capped or plugged and the remaining portions left in place. If evidence of radiological contamination was encountered, the remaining lateral was removed to the extent practicable. In addition, piping located within 10 feet of a building (referred to in this Radiological RACR as the 10-foot buffer zone) or other obstruction was left in place to protect the integrity of the structure and to ensure the health and safety of workers and tenants.

2.4.4 Design Plan for the Parcel D-1 Sanitary Sewer and Storm Drain Removal

The D-1 Sewer Design Plan (Shaw, 2010d) included guidance for excavation and site restoration activities within Parcel D-1, in addition to the design drawings for the SD and SS removal activities. The design drawings were based on the original Base Map (Gahagan and Brian, 1993). Following discussions with the Navy, the design drawings were revised and superseded by the following documents (herein referred to as Design Drawings), which collectively illustrate the SS and SD locations as well as WAs 24, 25, 28, 29 and 30:

- *Sanitary Sewer and Storm Drain Lines in Parcel D-1, Hunters Point Shipyard, San Francisco, California* (Shaw, 2010f)
- *Parcel D-1 IR Sites and WAs, Hunters Point Shipyard, San Francisco, California* (Shaw, 2010g)

Work originally contracted for within WA 13 has been deferred to future work efforts not under this contract. These WA numbers (WAs 24, 25, 28, 29, and 30) were incorporated into the identification number for each trench segment to ensure proper tracking and reporting of excavation activities and piping removal.

2.4.5 Demolition Plan for the Gun Mole Pier and South Pier Buildings

The D-1 Demolition Plan (Shaw, 2010e) included guidance for performing demolition activities at GMP and South Pier in Parcel D-1. Activities that were performed in accordance with this Demolition Plan are summarized as follows:

- Structural engineering surveys sufficient to ensure safe demolition
- The use of existing surveys or performance of pre-demolition surveys and abatement for asbestos-containing materials (ACMs) and lead-based paint for buildings on the GMP and the South Pier
- Demolished buildings on the GMP and the South Pier
- Removed material for disposal and recycle

On the GMP, Buildings 370, 375, 376, 377, 378, 379, 380, 383, 384, and 385 and the storage shed adjacent to Building 380 were demolished (Figure 2). On the South Pier, Building 311 was demolished (Figure 2).

2.4.6 Final Task-Specific Plan Building 274

The *Final Task-Specific Plan, Building 274 Scoping Survey, Hunters Point Shipyard, San Francisco, California* (Shaw, 2010h) provided task-specific details for the Scoping Survey of Building 274. The survey was conducted in accordance with the general approach and methodologies that are given in the D-1 Radiological Work Plan (Shaw, 2010b). The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). No exceptions to the D-1 Radiological Work Plan, *E&I Standard Operating Procedures* (Shaw E&I, 2014a), or the APP/SSHP/RPP were noted.

2.4.7 Final Task-Specific Plan Building 383 Area

The *Final Task-Specific Plan, Building 383 Area Scoping Survey, Hunters Point Shipyard, San Francisco, California* (Shaw, 2010i) provided task-specific details for the Scoping Survey at the Building 383 Area. The survey was conducted in accordance with the general approach and methodologies that are given in the D-1 Radiological Work Plan (Shaw, 2010b). The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). No exceptions to the D-1 Radiological Work Plan, *E&I Standard Operating Procedures* (Shaw E&I, 2014a), or the APP/SSHP/RPP were noted.

2.4.8 Final Task-Specific Plan Former Building 313, 313A, and 322 Sites

The *Final Revision 1, Final Task-Specific Plan, Former Building Sites 313, 313A, and 322, Characterization Survey and Remedial Action, Hunters Point Shipyard, San Francisco, California* (Shaw, 2011a) provided task-specific details for the scoping survey at the sites. The survey was in accordance with the general approach and methodologies that are given in the

D-1 Radiological Work Plan (Shaw, 2010b). The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). No exceptions to the D-1 Radiological Work Plan, *E&I Standard Operating Procedures* (Shaw E&I, 2014a), or the APP/SSHP/RPP were noted.

2.4.9 Final Task-Specific Plan South Pier Area Scoping Survey

The *Final Task-Specific Plan, South Pier Scoping Survey, Hunters Point Shipyard, San Francisco, California* (Shaw, 2010j) provided task-specific details for the scoping survey. The survey was conducted in accordance with the general approach and methodologies that are given in the D-1 Radiological Work Plan (Shaw, 2010b). The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). Any exceptions to the D-1 Radiological Work Plan; *E&I Standard Operating Procedures* (Shaw E&I, 2014a); *Final Task-Specific Plan, South Pier Scoping Survey, Hunters Point Shipyard, San Francisco, California*; or the APP/SSHP/RPP were noted in Section 1.5 of the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L).

2.4.10 Final Task-Specific Plan Addendum South Pier Area Scoping Survey

The *Final, Final Task-Specific Plan Addendum, South Pier Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012a) provided task-specific details for the additional radiological survey work at the South Pier Area. The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). Any exceptions to the D-1 Radiological Work Plan (Shaw, 2010b); *E&I Standard Operating Procedures* (Shaw E&I, 2014a); *Final, Final Task-Specific Plan Addendum, South Pier Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California*; or the APP/SSHP/RPP were noted in Section 1.5 of the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L).

2.4.11 Final Task-Specific Plan Gun Mole Pier Area Scoping Survey

The *Final Task-Specific Plan, Gun Mole Pier Area Scoping Survey, Hunters Point Shipyard, San Francisco, California* (Shaw, 2011b) provided task-specific details for the scoping survey. The survey was conducted in accordance with the general approach and methodologies that are given in the D-1 Radiological Work Plan (Shaw, 2010b). The survey activities conformed to the requirements of the APP/SSHP/RPP (Shaw, 2010a). Any exceptions to the D-1 Radiological Work Plan; *E&I Standard Operating Procedures* (Shaw E&I, 2014a); *Final Task-Specific Plan, Gun Mole Pier Area Scoping Survey, Hunters Point Shipyard, San Francisco, California*; or the APP/SSHP/RPP were noted in Section 1.5 of the *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J).

2.4.12 Final Task-Specific Plan Addendum Gun Mole Pier Area Scoping Survey

The *Final, Final Task-Specific Plan Addendum, Gun Mole Pier Area Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012b) provided task-specific details for the additional radiological survey work at the GMP area. The survey activities performed conform to the requirements of the APP/SSHP/RPP (Shaw, 2010a). Any exceptions to the D-1 Radiological Work Plan (Shaw, 2010b); *E&I Standard Operating Procedures* (Shaw E&I, 2014a); *Final, Final Task-Specific Plan Addendum, Gun Mole Pier Area Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California*; or the APP/SSHP/RPP were noted in Section 1.5 of the *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J).

2.4.13 Final Survey Unit Project Reports Abstracts

The *Final Survey Unit Project Reports Abstract, Revision 3, Sanitary Sewer and Storm Drain Removal Project, Hunters Point Shipyard, San Francisco, California* (SUPRA Revision 3; TtEC, 2011a) was developed as an overarching document that provided information and details common to each of the numerous trench SUs designated throughout HPNS during the TCRA and to reduce the level of detail that typically would be redundant to each SUPR. The SUPRA Revision 3 was applicable to the SD and SS TCRAs performed at HPNS prior to December 31, 2010. A second SUPRA entitled the *Final Survey Unit Project Reports Abstract for Sanitary Sewer and Storm Drain Removal Conducted After January 1, 2011, Hunters Point Shipyard, San Francisco, California* (SUPRA SSSD; TtEC, 2011b) was prepared for SD and SS TCRAs performed after January 1, 2011. These documents were applicable to all HPNS SD and SS SUPRs and data sets prepared for regulatory review.

The SUPRA Revision 3 (TtEC, 2011a) and SUPRA SSSD (TtEC, 2011b) provided history of the SD and SS systems at HPNS, documentation of the site's operational history, and presented detailed discussions and common information related to SD and SS systems removal actions at HPNS including:

- Release limits
- As low as reasonably achievable (ALARA) process
- ROCs and associated release criteria
- Investigation levels for gamma scan surveys
- FSS objectives, design, and methodology
- RSY processing of peripheral material, overburden, and excavated soil
- Import fill sources, screening, and analytical results
- Reference areas

- Sample collection methodologies and laboratory analyses including gamma spectroscopy analysis flags
- Off-site laboratory selection
- Quality assurance, quality control, and comparative laboratory sample results
- ⁹⁰Sr analysis
- Uncertainty analysis
- Data assessment (verification, validation, and evaluation)
- Statistical tests
- Dose and risk modeling
- Final unrestricted radiological release criteria

The release criteria for SD and SS soil ROCs, as presented in the SUPRA Revision 3 (TtEC, 2011a) and SUPRA SSSD (TtEC, 2011b), are presented in Table 2 and Table 3 of this Radiological RACR and include residual doses for both outdoor workers and residents.

2.4.14 Survey Unit Project Report

The radiologic details of the SD and SS removal work completed for Parcel D-1 were provided in the final versions of the SUPRs for Trench SUs 250 through 283 (Shaw, 2012c through 2012aj; Appendices H through L). Each of the Parcel D-1 draft SUPRs was provided to the EPA, the California Department of Toxic Substances Control (DTSC), and the CDPH, all of whom provided comments that were addressed in the final SUPRs. Regulatory review and approval of the final SUPRs occurred separately from the review of this Radiological RACR.

The SUPRs (Shaw, 2012c through 2012aj; Appendices H through L) prepared for the SD and SS associated with Parcel D-1 presented radiological details and summarized the scope, approach, and survey results from the removal action activities. The objective of the SUPRs was to demonstrate that potential residual radioactivity levels inside the excavated trenches (exposed sidewalls and bottoms) and within the backfill material met the release criteria. Fieldwork and construction activities were briefly summarized in each SUPR; however, detailed information related to the fieldwork performed is provided in this Radiological RACR. Each SUPR presented pertinent discussions and information including:

- FSS activities performed for the trench SU and selected backfill materials
- Laboratory analytical results and comparison of on-site and off-site analytical results

- Dose modeling with RESRAD default input parameters for a conservative residential farmer scenario using the larger of the method detection limit (MDL) or reported activity
- Dose and risk modeling results
- ALARA and the environmental ALARA process, including identification and review of potential radiological impacts as well as discussions related to qualitative and quantitative ALARA analyses
- Recommendation for final unrestricted radiological release

The SUPRs (Shaw, 2012c through 2012aj; Appendices H through L) are indexed by WA in Appendices H (WA 24), I (WA 25), J (WA 28), K (WA 29), and L (WA 30).

3.0 Parcel D-1 Field Activities Overview

Parcel D-1 field activities consisted of two major work elements, outlined in this section. The first work element included radiological surveys of buildings and ground surfaces. The second work element was removal of the SD and SS system.

3.1 Radiological Surveys of Buildings and Ground Surfaces

Radiological surveys of buildings and ground surfaces were performed in accordance the D-1 Radiological Work Plan (Shaw, 2010b). Parcel D-1 WA boundaries, impacted building, impacted building area, and the former building sites are shown on Figure 2. Radiological surveys were performed at the following sites:

- Building 274
- Building 383 Area footprint
- Former Building 313, 313A, and 322 Sites
- GMP
- South Pier

The purpose of the radiological surveys and removals was to achieve free-release of the radiologically impacted sites. FSSs were performed by Shaw E&I consistent with the *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, *NUREG-1575, Revision 1* (MARSSIM; DoD et al., 2000). The following sections provide an overview of the FSS activities performed for each of these sites. Results of the FSSs are summarized in Sections 4.17, 4.18, 6.11, 6.12, and 8.3 of this Radiological RACR.

3.1.1 Survey Design

The radiological surveys were designed consistent with MARSSIM (DoD et al., 2000) with additional guidance for the design of the survey and its implementation provided by the following documents:

- *A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys (Draft Report for Comment)*, *NUREG-1505* (NRC, 1998)
- *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions*, *NUREG -1507* (NRC, 1997)

The surveys were performed in accordance with the TSPs prepared for each site, and the requirements outlined in the D-1 Radiological Work Plan (Shaw, 2010a).

The intent of each survey design was to collect sufficient data to support the development of an FSS consistent with MARSSIM guidance. To maintain the potential for the scoping survey to become an FSS, data were continuously analyzed to determine the relationship between each SU and the reference (background) area. The objective of the surveys was to demonstrate that residual radioactivity levels in each site met the radionuclide-specific release criteria for the associated ROCs, and achieved radiological release for unrestricted use of the structure or site. Radionuclide-specific release criteria were obtained using the Atomic Energy Commission (AEC) *Regulatory Guide 1.86*, “Termination of Operating Licenses for Nuclear Reactors,” (1974). The radiological release criteria were documented in the AM (Navy, 2006) and are provided in Table 2.

3.1.2 Unrestricted Radiological Release Criteria

The NRC radiological release limit for unrestricted use was applied in assessing the results of the surveys. The results were analyzed to determine whether residual radioactivity, distinguishable from background radiation, resulted in a total effective dose equivalent (TEDE) to an average member of the critical (screening) group exceeded 15 millirem per year (mrem/yr) or the acceptable NCP risk management range of $10\text{E-}6$ to $10\text{E-}4$, and if the residual radioactivity had been reduced to levels that were ALARA. Per EPA (1997), the 15 mrem/yr limit equates to approximately $3\text{E-}04$ increased lifetime risk. This radiological release process ensured that residual radioactivity did not result in individuals being exposed to unacceptable levels of residual radiation or radioactive materials.

The radionuclide-specific release criteria, referred to as derived concentration guidelines (DCGLs), used for the Parcel D-1 FSSs are equivalent to the ROC release criteria established in the AM (Navy, 2006) (Table 2). The DCGLs are presented in terms of surface activity concentrations and refer to average levels of radiation or radioactivity above background levels. The DCGLs for building surfaces are expressed in disintegrations per minute per 100 square centimeters (dpm/100 cm²) and the former building area and sites are expressed in pCi/g. Typically, each radionuclide DCGL corresponds to the release criterion; however, in the presence of multiple radionuclides, the DCGLs were adjusted using the unity rule. A detailed discussion of the release criteria for each building, building area, or former building site was provided in the individual FSS reports (Shaw, 2012ak and 2013b through 2013e; Appendices H, J, and L).

3.1.3 Investigation Levels

Investigation levels are specific measurement levels used to indicate whether additional investigation may be necessary and also serve as a quality control check. When determining an investigation level using a statistical-based parameter (e.g., standard deviation), the following may be considered:

- Survey objectives
- Underlying radionuclide distributions (e.g., normal, log normal, nonparametric)
- Data population descriptors (e.g., standard deviation, mean, median)
- Prior survey and historical information

When investigation levels were exceeded, the measurement was confirmed to ensure that the initial measurement/sample was actually greater than that particular investigation level. This involved taking further measurements to confirm the initial result and quantify the area of elevated residual radioactivity, if appropriate.

The investigation level for gamma surveys was established at the reference area mean plus 3-sigma (where sigma is the standard deviation of the gamma readings in the reference area). Because various instruments were used during survey activities, there were different investigation levels based on the parameters of each individual instrument. Currently, there are no established release criteria based on gamma radiation readings alone. Gamma surveys were performed as an added measure to identify areas of gross contamination that could be an immediate health and safety concern and to help detect any anomalies, such as gamma-emitting sources, that may not emit alpha or beta radiation.

3.1.4 Survey Procedures

Survey procedures were performed in accordance with the Shaw standard operation procedures presented in the APP/SSHP/RPP (Shaw, 2010a) and the D-1 Radiological Work Plan (Shaw, 2010b). In Building 274, Class 1 SUs were comprised of the floors and walls less than or equal to 2 meters above the respective floor areas with a maximum area of 100 square meters (m^2), and Class 2 SUs included the upper portion of the walls and ceiling. For soil SUs, Class 1 SUs had a maximum area of 1,000 m^2 . Class 2 SUs were established in 15-foot buffer areas around each impacted area. On South Pier and GMP, additional release surveys were performed on remaining concrete infrastructure comprised of remaining building foundations, pier walls, vaults and manholes, and other features. Using a random start point in each SU, systematic data collection locations were laid out in a grid pattern using visual sampling plan (VSP) software.

Class 1 SUs received 100 percent surface scan coverage and Class 2 SUs received a minimum of 50 percent. Scanning activities were performed in each SU to identify elevated levels of radiation, relative to corresponding background levels from the selected reference area. Alpha and beta scan data were evaluated to determine whether any readings of the interior buildings, foundations, or features exceeded the release criteria. The data were then evaluated to determine whether any measurements exceeded 80 percent of the release criteria and to identify patterns or areas where additional biased measurements were needed or appropriate. Gamma scan data were reviewed to identify any measurements that exceeded the investigation limit of 3-sigma plus background. In areas where elevated measurements were noted, biased measurements were collected and evaluated, as appropriate. Gamma measurements that exceeded the investigation limit were compared to the beta measurements to determine whether additional follow-up measurements and/or sample collection were necessary. The majority of the readings logged above the investigation level were attributed to a disparity in the naturally occurring radioactive materials between the reference area and the SUs.

Following scanning and data evaluation, alpha, beta, and gamma static measurements were logged at discrete points in each SU. Basic statistical quantities were calculated for the data in an effort to identify patterns, relationships, and anomalies. The measurement locations were established using VSP software based on a random start point and a systematic grid pattern.

In areas with exposed soil, soil samples were collected from discrete systematic static measurement locations, processed, and analyzed by gamma spectroscopy following scanning activities. The data provided by the HPNS on-site gamma spectroscopy laboratory was used as screening-level data intended to guide remediation work only. Following receipt of results below the radiological release criteria, 100 percent of the soil samples were sent to the subcontracted off-site laboratory (TestAmerica St. Louis) for final analysis.

A minimum of 10 percent of the FSS samples were analyzed for ^{90}Sr . For samples collected from soil SUs, analysis for ^{239}Pu (and analysis for ^{232}Th in the Former Building 313, 313A, and 322 Sites) was required for samples with elevated ^{137}Cs and/or ^{90}Sr . Because these sample locations were subject to remediation, the contingent data was therefore not typically considered in the final dose evaluation for the SUs. The on-site and off-site laboratory analytical reports for each soil sample are provided in the appendices of the FSS reports indexed in Appendices H, J, and L.

In addition, for the one impacted building that remains standing within the WA (Building 274), swipe samples from building surfaces were collected at each systematic static location to assess the presence of alpha and beta radioactive contamination that would be readily removable from a surface.

Data collected during the survey activities were validated for integrity through verification of numerical results. Following collection of the daily survey data, the results were reviewed by the Radiological Control Supervisor (RCS) to verify completeness, ensure that the data presented were free of numerical or transcription errors, and confirm that established procedures and methodology were followed. In addition, the collected data were reviewed by the RCS and examined by the Radiological Safety Officer (RSO) to determine whether investigative levels had been exceeded.

Swipe, solid, and soil samples were analyzed by the on-site and off-site laboratories and the resulting data were assessed by the RSO to determine whether the objectives of the survey process were met. The assessment process consisted of four data phases:

1. Verification
 1. Validation
 2. Evaluation
 3. Quality assessment

In addition, results from the off-site and on-site laboratory analyses were reviewed to ensure that the radioactivity for FSS samples for all ROCs met the release criteria. Detailed discussions of the assessment process and the off-site and on-site laboratory data are provided in the respective FSS reports (Shaw, 2012ak and 2013b through 2013e; Appendices H, J, and L). The scan readings, static measurements, and swipe sample results are also provided in the FSS reports.

3.1.5 Dose and Risk Modeling

Two dose models were used to perform dose and risk modeling at the sites. For Building 274, the dose model was based on the “Building Occupancy” scenario. For soil SUs, the resident farmer dose model was used.

The dose model for the critical group for unrestricted radiological release of the sites was based on the default residential (or “Building Occupancy”) scenario for buildings using RESRAD-Build software. The default Building Occupancy scenario included external, ingestion, and inhalation exposure pathways. For all ROCs, a nondistributed TEDE scenario was selected as the most conservative approach. For all parameters, the most conservative scenarios were selected and assumed that persons living in the building would be exposed without use restrictions.

The dose model for the critical group for unrestricted radiological release of the sites was based on the default residential farmer scenarios in RESRAD using the most current version of the software at the time of the exercise. RESRAD analyzes the various pathways and scenarios

through which exposures could occur. These pathways include external and inhalation exposures and exposure from ingestion pathways including:

- Drinking water
- Food grown with contaminated irrigation water
- Food grown on contaminated soil
- Fish
- Inadvertent ingestion of soil

Land-based foods considered were:

- Leafy and root vegetables
- Fruit
- Grain
- Beef and poultry
- Milk
- Eggs

The default residential farmer scenario was used with only two minor changes:

- The actual surface area of each site was used instead of the 10,000-m² default area
- The net concentrations above background were used

This is the most conservative scenario as it assumes that persons living on the site can use the land for any purpose without use restrictions.

Modeling for each site was performed using the larger of the MDL and reported activity concentrations. The activities used to model each radionuclide present in background (e.g., ²²⁶Ra) were based on the isotopic net concentration. This approach was used to determine the maximum possible dose that one would expect to receive if the reported activities were actually at the MDL.

3.1.6 As Low As Reasonably Achievable

ALARA is a philosophy for striving for excellence in the practice of health physics and is an important aspect of radiation-safety regulations. The ALARA process was followed for the Parcel D-1 sites. Founded in the professional judgment of radiation-safety managers and

personnel, the ALARA concept cannot be used to measure whether or not a particular radiation-safety program is adequate in comparison with other programs and does not provide a numerical limit. For Parcel D-1, the ALARA process was implemented through identification of potential radiological impacts, a review of the radiological impacts, and the performance of qualitative and quantitative ALARA analyses.

Each of the radiologically impacted Parcel D-1 sites were subjected to ALARA review before fieldwork was initiated to ensure that radiation exposures to workers, the public, and the environment met ALARA principles. ALARA reviews were conducted for all operations, practices, and procedures with the potential for individual or collective doses.

To determine environmental impacts from radiological activities, the following methods were implemented for the Parcel D-1 sites:

- Field monitoring and sampling to identify areas that may require remediation (including air, swipe, and soil samples)
- Control of the radiologically impacted sites
- Air monitoring during remedial actions
- Frisking personnel and examining equipment leaving the Radiologically Controlled Area (RCA)
- Use of release criteria that equate to dose and risk
- Review of historical radiological operations to support investigations
- Characterization of the sites to ensure complete removal of radioactive material exceeding the release criteria, if identified
- Dosimetry worn by personnel to measure time-averaged doses from gamma radiation

Data analyses were performed for alpha, beta, and gamma radiation for each Parcel D-1 site to ensure that any possible radioactive contamination was identified. Following the completion of the survey activities, the qualitative radiological impacts from operations in the field were evaluated by performing dose and risk assessments. These results were provided to the RASO and regulatory agencies for review.

Based on qualitative ALARA analyses, site survey projects that could cause the potential dose to the public to exceed 1 millirem (individual) or 10-person-rem (collective) are subjected to quantitative ALARA analyses. Quantitative ALARA analyses include societal, technological, economic, and public policy considerations.

To date, no operations at Parcel D-1 have resulted in an individual dose to the public greater than 1 millirem or a collective dose greater than 10 person-rem. Based on these estimates of dose to the public from the survey work performed, only qualitative ALARA analyses were required for Parcel D-1. The majority of the data and analysis used for environmental ALARA evaluations were developed as part of the routine work processes. Qualitative ALARA analyses performed for the Parcel D-1 sites resulted in the following:

- No alpha or beta measurements above the investigation levels
- None of the alpha, beta, or gamma measurement results identified residual radioactivity above the release criteria for any ROC
- No personnel dosimetry badges processed identified a gamma dose above the background level

A complete discussion of the ALARA process was provided in the individual FSS reports for each site discussed in this Parcel D-1 Radiological RACR.

3.2 Removal of Storm Drain and Sanitary Sewer System

Removal of the SD and SS system was performed in accordance the D-1 Sewer Work Plan (Shaw, 2010c) and the D-1 Sewer Design Plan (Shaw, 2010d). Removed SD and SSs are showing in Figure 4. Removal of the SD and SS system was performed to achieve free-release of Parcel D-1. In accordance with the SUPRA SSSD (TtEC, 2011b), the SUPRs (Shaw, 2012c through 2012aj; Appendices H through L) were generated for each segment of SD and SS removed. SUPRs for each trench SU are indexed in Appendices H through L.

The purpose of the removal action was to meet the RAO and achieve radiological release for unrestricted use of the identified areas in Parcel D-1 (Figure 2). The locations of the SD and SS piping in Parcel D-1 are shown on Figure 4. As-Built drawings are included in Appendix C. The RAO was developed to protect public health and welfare, and the environment and to preclude potential exposure to future residents or workers by physically removing the existing SD and SS lines and disposing of the associated radioactive contaminants that exceed the radiological release criteria or remediation goals. Meeting the RAO substantially eliminates the potential migration of contaminated material within or outside of the systems at HPNS. The radiological release criteria for the SD and SS removal action were identified in the AM (Navy, 2006) and are provided in Tables 2 and 3.

Parcel D-1 was divided into six WAs (13, 24, 25, and 28 through 30) to expedite the SD and SS TCRA schedule and to ensure accurate tracking of trench segments, piping, and SUs throughout the excavation, remediation, and backfill iterative cycle. This Radiological RACR does not cover work conducted in WA 13, which housed the RSY 2 (operated by the Basewide Radiological

Contractor). A total of 12,957 linear feet of SD and SS pipes were excavated in WAs 24, 25, and 28 through 30 during the removal activities (Figure 4). Table 5 summarizes the data for each trench SUs including the WA location, associated trench segments, area and length, and relevant data related to number of samples collected, contamination identified, remediation performed, and dose and risk modeling results.

3.2.1 Pre-Excavation Field Activities

Pre-excavation field activities for the Parcel D-1 removal action commenced in September 2010.

3.2.1.1 Pre-Mobilization Conferences

Prior to mobilization, a field kick-off meeting was conducted on September 16, 2010. The attendees included the Navy RPM, the Navy Lead RPM, RASO, the Resident Officer in Charge of Construction (ROICC), the Caretakers Site Office (CSO), and Shaw personnel. During the kick-off meetings, site-specific activities and tasks required for soil sampling, excavation, and soil screening were addressed. The meeting minutes from the kick-off meeting is included in Appendix A.

3.2.1.2 Utility Survey

Following a review of the as-built drawing of the area, a utility survey was performed using industry-standard geophysical electromagnetic instrumentation. On September 28 and 29, 2010, the utility survey was performed over the areas to be excavated. SD and SS line locations were marked using appropriately colored paints, stakes, and flags.

3.2.1.3 Initial Topographical Survey

A pre-excavation topographic survey was performed to establish horizontal and vertical controls, and to assess the pre-removal site topographic features, such as high and low points and the limits of the excavation areas. This information provided the basis for calculating the excavation quantities.

3.2.1.4 Initial Radiological Surface Screening

Prior to mobilization of heavy equipment, an initial radiological surface survey was completed in accessible areas. The initial radiological surface survey consisted of a high-density gamma scan performed using sodium iodide (NaI) detectors and supported by global positioning system (GPS) equipment. The purpose of the radiological surface survey was to identify surface and near-surface (less than 30 centimeters, 12 inches below ground surface [bgs]) radioactive materials for removal prior to excavation activities to prevent the spread of contamination by the project equipment. The radiological surface survey encompassed the excavation areas and extended beyond to include the laydown areas.

3.2.1.5 Site Support Area and Preparation

Following mobilization of equipment and materials to Parcel D-1, a defined working area was established surrounding the site and support area and posted as a RCA (Figure 2). The RCA was delineated with temporary fence panels and appropriate signage. A project support area was established to provide for the temporary storage of tools, equipment, materials, employee break area, and employee parking. Previously established support areas included office trailers and employee parking located approximately 1 mile north of the site at 200 Fischer Avenue.

Radiological screening of personnel, equipment, and materials was executed when exiting the work area RCA. Work performed in or near roadways was coordinated with the task-related Site Supervisor, and other site users to implement appropriate traffic control and road closures as needed for site personnel safety. Additional coordination was performed to permit routine access into the Shaw work area/RCA to the basewide groundwater monitoring contractors for quarterly groundwater sampling events, and other Navy contractors.

3.2.1.6 Mobilization

Shaw mobilized to the site on September 20, 2010. Mobilization activities included site preparation, movement of equipment and materials to the site, and orientation and training of field personnel. Throughout the months leading up to field mobilization, the RPM and Navy Contracting Officer, and representatives from the ROICC, the RASO, and the CSO were notified regarding the planned schedule and commencement of groundbreaking excavation activities.

Upon receipt of the appropriate records and authorizations, field personnel, temporary facilities, and required construction materials were mobilized. The temporary facilities included restrooms, security fencing, runoff controls, and two secure connex-type storage boxes for short- and long-term storage of materials.

3.2.1.7 Stormwater and Erosion Control

The overall site level was calculated in the SWPPP and the site was determined to be Risk Level 2 based on the site-specific sediment risk (medium risk) and receiving water risk (low risk) (Shaw, 2010a).

Fencing and appropriate perimeter best management practices (BMPs) were installed along the entire land perimeter of Parcel D-1 prior to the start of excavation activities. Fiber rolls, silt fences, and/or sandbags, were installed along the inland fenced perimeter to prevent stormwater from entering or leaving project work zones. Prior to commencing excavation, fiber rolls or other BMPs were placed down slope of the excavation area. The BMPs minimized or prevented sediment entrainment in runoff entering the Bay.

Sandbags, fiber rolls or straw bale berms were installed around proposed sewer removal excavations where runoff may have led to open SDs or the Bay, as well as to prevent stormwater run-on from areas outside of the excavation. Any SDs located within 50 feet of the excavations were surrounded with sandbags and the SD covered with filter fabric.

Asphalt and road base material was removed. Excavated asphalt was stockpiled and processed on site. Sandbags, straw bales, or silt fences were placed around perimeter of the stockpiles. Excavated soil from trenches were stored inside the RSY's radiological processing. A decontamination pad was located on-site for decontaminating equipment used to excavate, load or haul soil from trenches, the RSY, or other backfill sources on HPNS. The decontamination pad was bermed and lined. As needed, sandbags or straw bales were placed in drainage control swales and diversions were made at drainage control discharge points or areas with high probability of erosion. Following removal of the SD and SS systems, temporary stormwater swales capable of handling two year period storm were installed to manage stormwater runoff within Parcel D-1 as discussed in Section 9.0

Buildings on the GMP and South Pier were demolished. Demolition and load-out of debris was conducted with BMPs in place. Demolition waste streams were segregated and transported off site for salvage or disposal using closed-top bins and covered trucks unless extremely large pieces of debris (such as overhead crane beam) were too large to place into covered vehicles. Any construction debris stockpiles on site were surrounded with sandbags, fiber rolls, or straw bales.

The Qualified SWPPP Practitioner conducted quarterly, weekly, pre-storm, post-storm, and 24-hour interval inspections in accordance with the SWPPP (Shaw, 2010a). Routine BMP maintenance and repairs were completed within 48 hours.

3.2.1.8 Fugitive Dust

Dust control measures were implemented, as appropriate and necessary, beginning during the site mobilization and continuing through site restoration and demobilization. The following control measures were implemented:

- Actively used unpaved roads in the project construction site were watered at a frequency sufficient to maintain adequate moisture.
- Vehicular traffic was restricted to speeds of 15 mph within the construction site and 5 mph in working areas.
- Bulk-loaded trucks used for transportation of soil and other heavy earthmoving equipment were not permitted to exit the construction sites, except through the track-out prevention control point.

- Unpaved active portions of the construction site were watered to minimize windblown dust and dust generated by vehicle traffic.
- During soil removal, surface soil was pre-wetted in the area to be removed prior to starting the activity. Soil-moisture content was sufficiently maintained during excavation activities to minimize fugitive dust creation.
- Unpaved, inactive portions of the area under construction were watered to minimize fugitive dust creation.
- The height from which excavated soil was dropped into trucks was minimized.
- Trucks were equipped with tarping systems to cover loads during soil transport.
- Truck traffic was minimized to the shortest allowable haul routes.
- Backfill materials were wetted to maintain moisture. Loader buckets were emptied slowly and drop heights from loader buckets were minimized. A water truck was dedicated to backfilling operations.
- Installed temporary drainage swales to direct overland stormwater runoff to outfalls along the Bay.

3.2.1.9 Air Monitoring

Prior to commencing earthmoving activities, air monitoring stations were set up upwind and downwind of the construction activities. Air monitoring was performed in accordance with the D-1 Execution Plan (Shaw, 2010a). The project monitored and sampled for PM10 (particulate matter less than 10 microns in diameter), total suspended particulates, lead, manganese, asbestos, and ROCs during earthmoving activities. Field operations were conducted to ensure that the derived airborne concentrations in Table 4 were not exceeded. Construction activities met the established threshold limit values through the entire project. Results from the air monitoring effort are provided in Appendix B of this report.

3.2.2 Storm Drain and Sanitary Sewer Excavation

Excavation of the SD and SS lines commenced on October 8, 2010, in WA 24. Excavation was completed on March 22, 2012. In total, 12,957 linear feet of trench (inclusive of soil, pipes, and manholes) shown on Figure 5 was excavated during the removal activities. Although not identified on the Design Drawings (Shaw, 2010f and 2010g), an additional 3,114 linear feet of SD and SS systems piping was discovered during the excavation activities and removed in accordance with the D-1 Sewer Work Plan (Shaw, 2010c). These previously unidentified pipelines were assigned trench segment identification numbers and incorporated into appropriate trench SUs for the radiological survey activities. Table 5 provides the trench SU data and Table 6 identifies each trench SU and associated trench segments, type of trench segments (SS or SD),

pipings material and diameter, and minimum and maximum depths for both the trench excavation and the pipes.

3.2.2.1 Excavated Soil

Excavated soil from the trenches was transferred to the Navy's Basewide Radiological Contractor's RSYs. The excavated soil was placed on screening pads for radiological processing. Each screening pad with soil derived from excavation of the Parcel D-1 SD and SS lines was assigned a unique ESU number. In total, 1,832 truckloads (approximately 18,320 cubic yards [cy]) of excavated soil associated with SD and SS trenches were removed from Parcel D-1 and transferred to RSY2, RSY3, and RSY4 for radiological processing. Table 7 summarizes each truckload of excavated soil, the associated screening pad and unique ESU number, and the date the soil was excavated and hauled to the Basewide Radiological Contractor's RSY.

3.2.2.2 Excavated Soil Radiological Processing

A total of 78 screening pads containing excavated soil derived from the Parcel D-1 SD and SS trenches were processed within the Basewide Radiological Contractor's RSYs during the removal action. Table 7 presents the processing and disposition summary of the excavated soil. Radiological processing of the excavated soil was performed by the Basewide Radiological Contractor.

Prior to radiological processing in the RSYs, the excavated material from Parcel D-1 was spread on 1,000-m² screening pads in lifts not exceeding a thickness of 6 inches. Radiological surface scans were conducted for each screening pad of excavated material. These high-density gamma scans were performed with the use of gamma scintillation detectors supported by GPS equipment. This survey process resulted in a 100 percent surface scan. Radioactive materials identified during the screening activities were collected, segregated, and stored in appropriate containers for subsequent disposal by the Navy's LLRW contractor. Gamma scan data for each ESU used as backfill material was maintained by the Basewide Radiological Contractor.

Areas of soil placed on the screening pads that showed the potential presence of radiation levels greater than the established investigation limits were further evaluated, and biased soil samples were collected, as appropriate, and submitted the laboratory for analysis. The systematic sample collection locations for each overburden SU or ESU were based on a random start point using the most current version of VSP software. A minimum of 18 systematic soil samples were collected from each overburden SU or ESU and analyzed by the on-site laboratory using gamma spectroscopy. Any soil associated with a sample result exceeding a radionuclide-specific release criterion was remediated. The release criteria for the SD and SS TCRA's are provided within the SUPRA Revision 3 (TtEC, 2011a) and SUPRA SSSD (TtEC, 2011b).

Following the removal of contaminated soil on the screening pads, verification soil samples were collected and analyzed. If additional contamination was identified, remediation was performed. This process was performed iteratively until the soil samples analyzed after each remediation event showed results less than the radionuclide-specific release criterion. Following the collection and analysis of the 18 FSS samples, excavated soil was stockpiled outside of the RSYs pending receipt of the ^{90}Sr analytical results with the concurrence of the RASO. Once the ^{90}Sr analytical results were received and evaluated against the release criteria, a data package was prepared for the RASO review. The RASO then concurred with whether or not the excavated soil was acceptable for use as backfill material. Only excavated soil that received concurrence from the RASO and were not chemically contaminated based on IR Program site analytical results were used as backfill material in the Parcel D-1 trench SUs.

Soil samples collected from the RSY pads were analyzed by gamma spectroscopy in the on-site radiological laboratory with 10 percent analyzed for ^{90}Sr , and 10 percent sent off site for quality assurance verification. The soil that exceeded the radiological release criteria was not approved for reuse as backfill. This soil was placed in LLRW bins for disposal by the Navy's LLRW contractor.

Final data from ESUs were provided by the HPNS on-site radiological laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data from the screening activities at all ESUs are presented in each trench SUPR. The analytical data packages prepared by the Basewide Radiological Contractor for ESUs supporting Parcel D-1 excavated soil evaluation are presented in the SUPRs (Shaw, 2012c through 2012aj; Appendices H through L).

3.2.3 Storm Drain and Sanitary Sewer Systems Piping

The Parcel D-1 SD and SS pipes and manholes (collectively called piping) were removed during excavation of the trenches. The majority of the piping was crushed or disintegrated during the removal activities and the debris was transferred along with the surrounding soil to the RSYs for radiological processing. SD and SS piping that was not crushed or crumbled during excavation activities were placed on plastic sheeting pending further investigation and sampling. In total, 86 manholes and 12,957 linear feet of pipe were removed and staged during the Parcel D-1 removal activities.

SS pipes in Parcel D-1 consisted of 2-inch to 36-inch diameter concrete, VCP, or metal located at depths ranging from 1 foot to 8 feet bgs. The Parcel D-1 SD lines consisted of 2-inch-to 36-inch-diameter concrete, VCP, metal, corrugated metal pipe (CMP) or PVC, or concrete-encased VCP located at depths between 1 foot and 8 feet bgs. The materials forming the sidewalls and bottom of the manholes were concrete, brick, or a combination of the two. Table 6 identifies each trench SU and associated trench segment, type of trench segment (SD or SS),

piping material and diameter, and minimum and maximum depths for both the trench excavation and the pipes.

3.2.3.1 Pipe and Manhole Radiological Surveys

Radiological survey activities were performed during the Parcel D-1 removal activities for a total of 86 manholes and 12,957 linear feet of pipe. These radiological surveys consisted of a 100 percent surface scan on each pipe section and the materials forming the sidewalls of each manhole. In addition, two static measurements were recorded, and two swipe samples were collected and submitted to the on-site laboratory for analysis. The collected data were reviewed by the RSO to determine whether investigative levels had been exceeded. The results of these radiological surveys are provided in the SUPRs (Shaw, 2012c through 2012aj; Appendices H through L). The release criterion was 100 dpm/100 cm² for alpha contamination and 1,000 dpm/100 cm² for beta contamination

3.2.3.2 Pipe and Manhole Sediments

A sufficient volume of sediment was available for sample collection in 9 manholes and 24 sections of pipe during the Parcel D-1 removal action (Table 8). A total of 9 sediment samples were collected from manholes and 24 sediment samples were collected from pipes. The sediment samples were analyzed in the laboratory using gamma spectroscopy. The highest concentration of ¹³⁷Cs and ²²⁶Ra contamination identified in the Parcel D-1 sediment samples was 0.4798 and 1.4855 pCi/g, respectively. Pipes and manholes associated with sediment sample analytical results that exceeded the release criteria were placed in LLRW bins for off-site disposal by the Navy's LLRW contractor. Typically, radiological surveys were performed for the Parcel D-1 piping that did not contain contaminated sediments prior to final disposition. Table 8 summarizes the sediment samples, associated analytical results, and disposition of the associated piping. Radiological analytical results are available in Appendix M.

3.2.4 Extraneous Pipe

During the Parcel D-1 removal action, various pipes with the potential to be liquid-bearing were found while excavating the SD and SS systems. These extraneous pipes (EP) were assigned identification numbers and were "hot tapped" or breached to identify the presence of potential liquid or gas in accordance with the D-1 Sewer Work Plan (Shaw, 2010c).

A total of 29 EPs were identified during the Parcel D-1 TCRA. Radiological surveys were performed on the EP; however, sediment samples were not collected because sufficient volume of material was not available for analysis. The EPs are listed in Table 10, along with the survey identification number, sediment sample results, and disposition of each EP.

3.2.5 Piping Remaining in Place

The majority of the SD and SS pipe sections and manholes were excavated during the Parcel D-1 removal activities; however, one section of pipe was left in place following the completion of the removal action activities. WA 24 pipe section 06-D28-32-1C leading to the Berth 15 outfall from Manhole MH744 was left in place to minimize the structural impact to the degrading berth wall resulting from the removal process. Manhole 744 was left in place to permit clean out of trapped materials from the newly constructed tie ins of the connecting Morrell Street and Manseau Street swales. The interior of the remaining section and manhole were radiologically surveyed and sediment samples were obtained and analyzed. All results met radiological release criteria.

3.2.6 Storm Drain and Sanitary Sewer Trenches

Excavation of the SD and SS trenches commenced on October 8, 2010, in WA 24, and the last truckload of Parcel D-1 soil was excavated on March 22, 2012. The maximum depth of the excavated trenches ranged between 1 foot and 10 feet bgs (Table 6). In total, 12,957 linear feet of trench (inclusive of soil, pipes, and manholes) was excavated during the TCRA activities. Although not identified on the Design Drawings (Shaw, 2010f and 2010g), an additional 3,114 linear feet of trench (inclusive of soil and pipe) and 15 manholes were discovered during the excavation activities and removed in accordance with the D-1 Sewer Work Plan (Shaw, 2010c).

Thirty-four trench SUs were designated in the five WAs during the Parcel D-1 project activities as follows:

- WA 24
 - Trench SU 250 (SU 250)
 - Trench SU 251 (SU 251)
 - Trench SU 252 (SU 252)
 - Trench SU 253 (SU 253)
 - Trench SU 254 (SU 254)
 - Trench SU 255 (SU 255)
 - Trench SU 256 (SU 256)
 - Trench SU 257 (SU 257)
 - Trench SU 259 (SU 259)
 - Trench SU 261 (SU 261)
 - Trench SU 264 (SU 264)

- Trench SU 265 (SU 265)
 - Trench SU 272 (SU 272)
 - Trench SU 273 (SU 273)
 - Trench SU 274 (SU 274)
 - Trench SU 277 (SU 277)
- WA 25
 - Trench SU 283 (SU 283)
- WA 28
 - Trench SU 258 (SU 258)
 - Trench SU 262 (SU 262)
 - Trench SU 270 (SU 270)
 - Trench SU 271 (SU 271)
 - Trench SU 276 (SU 276)
 - Trench SU 278 (SU 278)
 - Trench SU 279 (SU 279)
 - Trench SU 280 (SU 280)
 - Trench SU 281 (SU 281)
 - Trench SU 282 (SU 282)
- WA 29
 - Trench SU 266 (SU 266)
 - Trench SU 267 (SU 267)
 - Trench SU 268 (SU 268)
 - Trench SU 269 (SU 269)
 - Trench SU 275 (SU 275)
- WA 30
 - Trench SU 260 (SU 260)
 - Trench SU 263 (SU 263)

Some trench SUs crossed boundaries and were assigned to the WA in which the majority of the excavation was physically located or were distinctly associated with a building/structure or former building site for presentation in this Radiological RACR. With the exception of SU 262, no trench SU exceeded 1,000 m² in exposed surface area. Detailed discussions for each of the Parcel D-1 trench SUs are provided in Sections 4.0 (WA 24) through 8.0 (WA 30) of this Radiological RACR and in its respective SUPR. The locations of the WAs and associated Parcel D-1 trench SUs are shown on Figures 2 and 5. The individual SUPRs (Shaw, 2012c through 2012aj; Appendices H through L) summarize the radiological activities performed for each excavated trench along with the WA location, associated trench segments, area and length, and relevant data related to number of samples collected, contamination identified, remediation performed, and dose and risk modeling results.

3.2.6.1 Trench Survey Activities

Numerous soil samples were collected from the sidewalls and bottoms of the 34 trench SUs that were designated following excavation of the SD and SS systems to determine whether radionuclide contamination was present above the release criteria. Systematic soil sample locations were identified for each round of sample collection using VSP software with a random start point on a triangular grid pattern. A minimum of 18 soil samples were collected from each trench SU and submitted under chain-of-custody to the laboratory for analysis by gamma spectroscopy. In addition, investigative samples were collected and analyzed, as needed, based on the results of trench survey activities and/or piping sediment sample analytical results. Soil samples were submitted to the HPNS on-site laboratory for analysis by gamma spectroscopy. The data provided by the HPNS on-site gamma spectroscopy laboratory was used as screening-level data intended to guide remediation work only. Following receipt of results below the radiological release criteria, 100 percent of the soil samples were sent to the subcontracted off-site laboratory (TestAmerica St. Louis) for final analysis. A minimum of 10 percent of the final samples were analyzed for total strontium (Sr).

During the Parcel D-1 removal action, 1,275 soil samples were collected from the 34 designated trench SUs and analyzed by the laboratory. Of these 1,275 soil samples, 629 were investigative and 646 were final systematic FSS soil samples. Throughout this Radiological RACR, “investigative” trench SU soil samples refers to any systematic, characterization, investigation, or verification soil sample that was not one of the final 18 FSS soil samples. As indicated in Table 5, the highest ¹³⁷Cs investigative soil sample analytical result collected from a trench SU was found in Trench SU 266 at 0.682 picocuries per gram (pCi/g) and the highest ²²⁶Ra investigative soil sample analytical result was identified in Trench SU 265 at 2.827 pCi/g. ⁹⁰Sr was detected in one sample from Trench SU 254 at 0.666 pCi/g.

3.2.6.2 Trench Survey Unit Remediation Activities

Radiological contamination identified by the laboratory in trench SU soil samples was remediated during the Parcel D-1 remedial actions. Based on the laboratory analytical results, approximately 140 cy of soil was remediated from the 34 designated trench SUs. The contaminated soil was placed in LLRW bins pending off-site disposal by the Navy's LLRW contractor. The LLRW bins were transported off site to either the U.S. Ecology facility in Idaho or the Energy Solutions facility in Clive, Utah.

Contaminant concentrations in trench SU soil ranged between 0.115 pCi/g and 0.682 pCi/g for ^{137}Cs and between 1.487 pCi/g and 2.827 pCi/g for ^{226}Ra . The majority of the contaminated soil remediated originated from Trench SUs 254 and 265 located in WA 24. Table 5 lists each Parcel D-1 trench SU, elevated ROCs, elevated soil sample results, and estimated volume of soil remediated.

3.2.6.3 Trench Survey Unit Final Status Survey Activities

The D-1 Sewer Work Plan (Shaw, 2010c) specified the work to be performed for the SD and SS FSS activities, the following documents were used as guidance in designing the FSSs:

- MARSSIM (DoD et al., 2000)
- *A Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys (Draft Report for Comment)*, NUREG-1505 (NRC, 1998)
- *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions Guide*, NUREG-1507 (NRC, 1997)

In general, FSSs for every excavated trench section included a 100 percent surface scan and systematic and biased static or direct measurements. Static surface radiation measurements were collected at each systematic sample location prior to the collection of the soil sample to identify the potential presence of gross contamination.

Systematic soil samples were collected from the sidewalls and bottom of each of the 34 designated trench SUs in Parcel D-1 after establishing a grid that did not exceed 1,000 m² over the exposed trench surface. A minimum of 18 systematic and discrete soil samples were collected from each trench SU and submitted to the laboratory for analysis by gamma spectroscopy. The data provided by the HPNS on-site gamma spectroscopy laboratory was used as screening-level data intended to guide remediation work only. Following receipt of results below the radiological release criteria, 100 percent of the soil samples were sent to the subcontracted off-site laboratory (TestAmerica St. Louis) for final analysis. A minimum of 10 percent of the final samples were analyzed for total Sr. The collected data were reviewed by the RSO to determine whether investigative levels had been exceeded and were submitted to the

RASO for concurrence. The laboratory analytical results were used for dose and risk modeling to facilitate regulatory agency concurrence for unrestricted radiological release. The radiological details for each of the 34 trench SUs were presented in the individual SUPRs (Shaw, 2012c through 2012aj; Appendices H through L).

During the Parcel D-1 trench SU FSS activities, a total of 1,308 systematic soil samples were collected and analyzed. The laboratory analytical results for the trench SU FSS soil samples were presented in the SUPRs (Shaw, 2012c through 2012aj; Appendices H through L).

3.2.7 Trench Survey Unit Dose and Risk Modeling

For dose and risk modeling efforts, SD and SS systems trench SUs were composed of two different types:

- Trenches
- Backfill material

Dose and risk modeling was performed for each of the 34 trench SUs using the default exposure parameters in *RESRAD, Version 6.5* (Argonne National Laboratory [ANL], 2009). The backfill material and the trench units were modeled separately using the larger of the MDL or reported activity concentrations. Radionuclide-specific release criteria were obtained from the AM (Navy, 2006).

The results of the modeling efforts for each of the 34 designated trench SUs in Parcel D-1 fall within the acceptable NCP risk management range of $10\text{E-}6$ to $10\text{E-}4$, which supports radiological free-release. Based on the dose and risk modeling results, the highest net dose to workers or members of the public as a result of exposures to residual radioactive material in soil on Parcel D-1 was identified in Trench SU 263 at 1.733 mrem/y with an excess lifetime cancer risk (ELCR) of $2.8\text{E-}05$. Modeling is discussed separately for each trench SU in this Radiological RACR and a complete discussion of the dose and risk modeling results was presented in each SUPR indexed in Appendices H through L. Table 3 presents the SD and SS removal action release criteria for each ROC including residual doses for both outdoor workers and residents. A summary of the dose and risk modeling results for each trench SU is provided in Table 5.

3.2.8 As Low As Reasonably Achievable

As described in the SUPRA Revision 3 (TtEC, 2011a) and SUPRA SSSD (TtEC, 2011b), the environmental ALARA process was implemented for each of the 34 trench SUs. The ALARA process was discussed in the individual SUPRs (Shaw, 2012c through 2012aj; Appendices H through L) provided in the SUPRA Revision 3 and SUPRA SSSD. ALARA analyses were performed based on recent estimates of dose to the public from HPNS operations. Based on

qualitative ALARA analyses, excavation projects that could cause the potential dose to the public to exceed 1 millirem (individual) or 10 person-rem (collective) are subjected to quantitative ALARA analyses. To date, no operations at HPNS have resulted in an individual dose to the public greater than 1 millirem or a collective dose greater than 10 person-rem. Final data from the Trench SUs met project dose and risk criteria. In addition, air sampling results did not exceed 10 percent of the derived air concentration and the processed personnel dosimetry badges did not identify a single gamma dose above background levels. A complete discussion of the ALARA process for each Parcel D-1 trench SU was provided in each SUPR (Appendices H through L).

3.2.9 Import Fill

The SD and SS removal action necessitated the importation of appropriate soil for use as backfill material under both of the following conditions:

- When insufficient radiologically released overburden material or excavated soil was available for these activities
- To account for the void created by the removed piping

Imported fill was used as backfill material in the majority of the trench SUs as a supplement to the radiologically surveyed and released overburden SUs or excavated soil. A complete discussion of the imported fill material was provided in the SUPRA SSSD (TtEC, 2011b) including soil radiological analytical test results and acceptance criteria. The import fill used as backfill material in Parcel D-1 was identified as “Jericho” soil in the SUPRA SSSD. The data for the import fill material is presented in Appendix O. Table 5 identifies the specific backfill material used in each trench SU and indicates whether the imported fill was used in addition to radiologically screened soil as the backfill material.

3.3 Worker Health and Safety

There were no Occupational Safety and Health Administration days-away cases (lost-time injuries or “OSHA recordable injury”) during the execution of this project. Upon completion of the project, Shaw safely worked over 790 days in the field.

4.0 Work Area 24

WA 24 is located at the northwest end of Parcel D-1 (Figure 2). It is bounded on the south and east by Parcel F and the Bay, on the west by Parcel G, and on the north and west by Parcel C. The radiological work activities performed for WA 24 included Trench SUs 250, 251, 252, 253, 254, 255, 256, 257, 259, 261, 264, 265, 272, 273, 274, and 277 and Building 274 and the Former Building 313, 313A, 322 Sites (Figure 5). The following sections summarize the work activities completed in WA 24 to support the recommended radiological release for unrestricted use of the Parcel D-1 property.

4.1 Trench Survey Unit 250

Trench SU 250 included trench segments 06-D24-00-6A, 06-D24-00-6B, 06-D24-00-6C, 06-D24-00-6E, 06-D24-48-6C, and 06-D24-48-6D and a volume of excavated fill material used for backfill. The location of Trench SU 250 is shown on Figure 5. Trench SU 250 is located along Manseau Street and is comprised of two discrete sections. The western section is bordered on the west by the Parcel D-1 boundary and on the east by Trench SU 251. The eastern section is bordered on the west by Trench SU 251 and on the east by Trench SU 253. The total surface area is approximately 5,317 square feet (ft²) (494 m²) of actual excavated trench, in varying depths between 6 and 8 feet bgs. Approximately 390 cy of soil was excavated from Trench SU 250.

4.1.1 Removal Action Activities

Excavation of Trench SU 250 commenced on October 3, 2010, in trench segment 06-D24-00-6A. A total of 39 truckloads (approximately 390 cy) of overburden soil and peripheral material were excavated during the removal action activities. Following the completion of excavation on January 19, 2011, Trench SU 250 exhibited an exposed surface area of 494 m² (5,317 ft²) and contained approximately 285 feet of SS and/or SD pipes. The maximum excavated depth ranged between 6 and 8 feet bgs.

A total of 285 feet of pipe and manholes MH727 and MH742 were excavated from Trench SU 250 and placed on plastic sheeting pending further activities during the Parcel D-1 removal action. Sufficient sediment for sample collection and analysis was found in trench segments 06-D24-00-6A and 06-D24-00-6E. The analytical results for the sediment samples collected from the trench segments did not indicate the presence of radioactivity above the release criteria for any ROC (Table 8). The sediment sample analytical reports are provided in Appendix M. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

Radiological surveys were performed on the staged pipe sections. No elevated results were identified for any of the piping surveyed. The final disposition of piping excavated from trench segments 06-D24-00-6A, 06-D24-00-6B, 06-D24-00-6C, 06-D24-00-6E, 06 D24-48-6C, and 06-D24-48-6D is provided in Table 6.

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 250 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels equal to the MDA; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Thirteen of the 18 systematic samples reported ^{226}Ra levels greater than the MDA, and one result (06-PD1T-250-011) exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the initial 18 systematic samples were sent off site for total Sr as a surrogate for ^{90}Sr analysis. Two total Sr results were reported above the MDL; however, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the SU 250 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. Two areas containing measurements above the scan investigation level were identified and re-investigated via biased static measurements. None of the follow-up static measurements were above the static investigation level; therefore, no further investigation was required. A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H).

Remedial activities were performed over an approximate 78.5-ft² area that encompassed the area represented by sample 06-PD1T-250-011. Soil was removed to a depth of 0.5 foot below the trench surface, resulting in the removal of approximately 1.4 cy of material that was disposed as LLRW. Six post-remediation samples (06-PD1T-250-022 through 06-PD1T-250-027) were collected at the original location and in the vicinity of sample 06-PD1T-250-011, and all results were below project release criteria, as shown in Table 3-2 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H).

A second set of systematic samples was collected in SU 250 after remediation. The systematic sampling results for the project ROCs are summarized in Table 3-3 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 250 Project Report*. Five of the 18 systematic samples reported ^{137}Cs levels equal to the MDA, and

two results (06-PD1T-250-103 and 06-PD1T-250-108) exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Thirteen of the 18 systematic samples reported ^{226}Ra levels greater than the MDA; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

The two systematic samples with elevated ^{137}Cs were also sent to the off-site laboratory for total Sr analysis as a surrogate for ^{90}Sr . One result for total Sr was reported above the MDL; however, neither result exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

Six pre-remediation samples (06-PD1T-250-119 through 06-PD1T-250-124) were collected to bound the areas represented by the elevated samples 06-PD1T-250-103 and 06-PD1T-250-108, and all results were below project release criteria. Remedial activities were performed over an approximate 50-ft² area that encompassed the area represented by sample 06-PD1T-250-103. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 1.9 cy of material that was disposed as LLRW. Seven post-remediation samples (06-PD1T-250-125 through 06-PD1T-250-130, and 06-PD1T-250-138) were collected at the original location and in the vicinity of sample 06-PD1T-250-103, and all results were below project release criteria as shown in Table 2. Remedial activities were performed over an approximate 202.5-ft² area that encompassed the area represented by sample 06-PD1T-250-108. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 7.5 cy of material that was disposed as LLRW. Eight post-remediation samples (06-PD1T-250-131 through 06-PD1T-250-137, and 06-PD1T-250-139) were collected at the original location and in the vicinity of sample 06-PD1T-250-108, and all results were below project release criteria as shown in Table 2.

4.1.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 250 remained in place following the completion of the removal action.

4.1.3 Final Status Survey Summary

A total of 18 FSS soil samples were collected from Trench SU 250 on July 7, 2011, and submitted to the HPNS on-site radiological laboratory for analysis. The final set of systematic samples were collected from Trench SU 250 following the second remediation, and the data from this sampling round were used for the dose modeling presented in this report. The final systematic sampling results for the project ROCs are summarized in Table 3-6 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H). One of the 18 systematic samples reported a ^{137}Cs level equal to the MDL; no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDA; no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g). Three of the 18 systematic samples were sent to the off-site laboratory for total Sr as a surrogate for ^{90}Sr analysis. No total

Sr result was reported above the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 250 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 250 were 0.043 pCi/g for ^{137}Cs , 0.189 pCi/g for ^{90}Sr , and 0.113 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.153 pCi/g for ^{90}Sr , and -0.143 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 250 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. The model of Trench SU 250 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 250 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 250 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 250 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. The model of Trench SU 250 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H) was issued in September 2012.

4.1.4 Backfill Activities

ESUs 354 (100 cy), 356 (30 cy), 357 (100 cy), 384 (50 cy), and 389 (110 cy) were used to backfill Trench SU 250. Final data from ESUs 354, 356, and 357 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). Final data from ESUs 384 and 389 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at these ESUs are presented in Tables 3-7 through 3-11 of the *Final Survey Unit 250 Project Report* (Shaw, 2012c; Appendix H). The analytical data packages for all ESUs are presented in Appendix C of the *Final Survey Unit 250 Project Report*.

4.2 Trench Survey Unit 251

Trench SU 251 included trench segment 06-D24-00-6A and a volume of excavated fill material used for backfill. The location of Trench SU 251 is shown on Figure 5. Trench SU 251 is located along the western boundary of Parcel D-1 along Manseau Street. The footprint of Trench SU 251 was 131 feet in length (40 meters). The total excavated surface area was approximately 3,233 ft² (300 m²) with excavation depths varying between 8 and 10 feet bgs. Approximately 270 cy of soil were excavated from Trench SU 251.

4.2.1 Removal Action Activities

Excavation of Trench SU 251 commenced on November 4, 2010, in trench segment-06-D24-00-6A. A total of 27 truckloads (approximately 270 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 131 linear feet of 27-inch diameter SD pipe was removed from Trench SU 251. No manhole was removed from Trench SU 251. Pipe was found in trench between 7 and 9 feet bgs (Table 6). The majority of the pipe sections were excavated, removed, and placed on plastic sheeting prior to radiological survey and clearance. Sufficient sediment for sample collection and analysis was found in 06-D24-00-6A pipe sections. The analytical results for the sediment samples collected from trench segment 06-D24-00-6A pipes did not indicate the presence of radioactivity above the release criteria for any ROC (Table 8). The sediment sample analytical reports are provided in Appendix M.

Radiological surveys were performed on staged pipe sections. No elevated results were identified for any of the piping surveyed. The final disposition of piping excavated from trench segment 06-D24-00-6A is provided in Table 6. Following radiological release, pipe sections were disposed of as general construction debris.

4.2.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 251 remained in place following the completion of the removal action.

4.2.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (Pacific Northwest National Laboratory [PNNL], 2010). Final systematic samples were collected from 18 locations on December 13, 2010, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 251 Project Report* (Shaw, 2012d; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of *Final Survey Unit 251 Project Report*. One of the 18 systematic samples reported a ^{137}Cs level greater than the MDL; the result did not exceed the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g). Two of the 18 systematic samples were sent to the off-site laboratory for Sr as a surrogate for ^{90}Sr analysis. Both samples were reported as below the MDL, and therefore, were below the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 251 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 251 were 0.039 pCi/g for ^{137}Cs , 0.136 pCi/g for ^{90}Sr , and 0.672 pCi/g for ^{226}Ra . The trench SU average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.209 pCi/g for ^{90}Sr , and 0.614 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 251 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. The model of Trench SU 251 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 251 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 251 Project Report* (Shaw, 2012d; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 251 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 251 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. The model of Trench SU 251 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 251 Project Report* (Shaw, 2012d; Appendix H) was issued in September 2012.

4.2.4 Backfill Activities

ESUs 354 (50 cy) and 356 (220 cy) were used to backfill Trench SU 251. Final data from ESUs 354 and 356 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data from the screening activities at ESUs 354 and 356 are presented in Tables 3-2 and 3-3 of *Final Survey Unit 251 Project Report* (Shaw, 2012d; Appendix H), respectively. The analytical data packages prepared by the Basewide Radiological Contractor for ESUs 354 and 356 are presented in Appendix C of *Final Survey Unit 251 Project Report*. No imported fill material was used to backfill Trench SU 251.

A stormwater swale was constructed on top of the footprint of Trench SU 251. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks.

4.3 Trench Survey Unit 252

Trench SU 252 included trench segments 06-D24-00-6E, -6F, -6G, -6H, -6I, -6K, -6L, -7A, -8A, and -8C, 06-D24-32-7A, 06-D24-32-8A, and 06D24-48-6F and volumes of excavated and imported fill material used for backfill. The location of Trench SU 252 is shown on Figure 5.

Trench SU 252 is located along Manseau Street and is comprised of five discrete sections. The western-most segment is bordered on the west by Trench SU 253 and on the east by Trench SU 255, and the next segment to the east is bordered on the west by Trench SU 255 and on the east by Trench SU 257. The next segment to the east is bordered on the west by Trench SU 257 and on the east by Trench SU 259, and the section furthest east is bordered by Trench SU 259. The total excavated surface area was approximately 6,257 ft² (581 m²) with excavation depths varying between 3 and 5.4 feet bgs. Approximately 530 cy of soil were excavated from Trench SU 252.

4.3.1 Removal Action Activities

Excavation of Trench SU 252 commenced on November 4, 2010, at MH730, and removal of the pipe, manholes, and soil was completed on January 25, 2011. A total of 53 truckloads (approximately 530 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 317 linear feet of pipe was removed from Trench SU 252. Pipe was found in the trench between 2 and 4.4 feet bgs. Table 6 summarizes the type, material make, and size associated with each pipe segments in Trench SU 252. Majority of the RCP or metal pipe sections were excavated out and placed on plastic sheeting pending further investigation. All removed metal pipes were disposed of as LLRW, whereas all RCP sections were released and disposed of as general construction debris. Pipes or portions of the pipe that were crushed and were less than 6-inch in any directions were sent to the Basewide Radiological Contractor's RSY2 along with the excavated soil. All VCPs were crushed during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

Three manholes were excavated from Trench SU 252, identified as MH729, MH730, and MH743 (Table 9). These three manholes were excavated and placed on plastic sheeting pending radiological survey and clearance. Insufficient sediment was found in the manholes for sample collection and analysis. The manholes were radiologically surveyed. MH729 and MH730 were disposed as LLRW and MH743 was released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

A 28-foot section of SD pipe, originally identified as 06-D24-00-6J on the D-1 Sewer Design Plan (Shaw, 2010c) was not found during excavation. It was labeled as "abandoned" on the existing site drawing and is believed to have been removed previously.

Sufficient sediment for sample collection and analysis was found in the four pipe sections (Table 8). The analytical results for two of the three sediment samples collected from pipe sections from 06-D24-6K did not indicate the presence of radioactivity above the release criteria for any ROC. One sediment sample collected from trench segment 06-D24-00-6K identified

^{137}Cs activity above the release criterion at 0.131 pCi/g. The sediment sample collected from the pipe section removed from trench segment 06-D24-00-6H identified ^{137}Cs activity above the release criterion at 0.2599 pCi/g. Due to the presence of ^{137}Cs activity above the release criterion in two pipe sections excavated from trench segments 06-D24-00-6H and 06-D24-00-6K, sediment samples with identified ^{137}Cs activity were sent to the off-site laboratory for total Sr analysis. The off-site analytical results for the two ^{137}Cs elevated samples did not indicate the presence of Sr activity above the release criterion. The sediment sample analytical reports are provided in Appendix M. The 06-D24-00-6H and 06-D24-00-6K pipe sections containing contaminated sediment were placed in LLRW bin for disposal by the Navy's LLRW contractor.

4.3.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 252 remained in place following the completion of the removal action.

4.3.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 20 locations on March 22, 2011, and April 14, 2011, and submitted to the basewide laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 252 Project Report* (Shaw, 2012e; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of *Final Survey Unit 252 Project Report*. One of the 20 systematic samples reported ^{137}Cs levels equal to the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Nineteen of the 20 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 20 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . No results for total Sr were reported above the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 252 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 252 were 0.042 pCi/g for ^{137}Cs , 0.149 pCi/g for ^{90}Sr , and 0.710 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.037 pCi/g for ^{137}Cs , 0.144 pCi/g for ^{90}Sr , and 0.387 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 252 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of 9.9E-06. The model of Trench SU 252 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 252 dose calculations are presented in Appendix D and are summarized in Table 6-2 of *Final Survey Unit 252 Project Report* (Shaw, 2012e; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 252 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and import fill soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 252 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of 9.9E-06. The model of Trench SU 252 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 252 Project Report* (Shaw, 2012e; Appendix H) was issued in September 2012.

4.3.4 Backfill Activities

Excavated Soil Units 354 (30 cy), 357 (30 cy), 358 (110 cy), 360 (80 cy), 384 (80 cy), and 389 (20 cy) were used in part to backfill SU 252. Final data from ESUs 354, 357, 358, and 360 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). Final data from ESUs 384 and 389 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at these ESUs are presented in Tables 3-2 through 3-7 of *Final Survey Unit 252 Project Report* (Shaw, 2012e; Appendix H). The analytical data packages for all ESUs are presented in Appendix C of *Final Survey Unit 252 Project Report*.

A stormwater swale was constructed on top of the footprint of Trench SU 252. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks.

4.4 Trench Survey Unit 253

Trench SU 253 included trench segment 06-D24-00-6E and a volume of screened excavated soil used for backfill. The location of SU 253 is shown on Figure 5. Trench SU 253 is located along Manseau Street in WA 24, outside of the potentially radiologically impacted area associated with GMP. Trench SU 253 is bordered by Trench SU 250 to the west and Trench SU 252 to the east. Approximately 160 cy of soil were excavated from Trench SU 253. The length of Trench SU 253 is 74 feet (26 meters), and the estimated surface area of the excavated surfaces for Trench Unit 253 is 1,871 ft² (174 m²). Excavated depths varied between 4 to 8 feet bgs.

4.4.1 Removal Action Activities

Excavation of Trench SU 253 commenced on November 8, 2010, in trench segment 06-D24-00-6E, and removal of the pipe and soil was completed on the same day. A total of 16 truckloads (approximately 160 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 74 linear feet of pipe was removed from Trench SU 253. Pipe was found in trench between 3 and 7 feet bgs. Trench segment 06-D24-00-6E contained a 30-inch diameter RCP. Majority of the RCP sections were excavated out and placed on plastic sheeting pending further investigation. Portions of the pipe that were crushed or disintegrated upon removal were sent to the Basewide Radiological Contractor's RSY2 along with the excavated soil for processing. No manhole was removed from Trench SU 253.

Sufficient sediment for sample collection and analysis was found in three pipe sections of trench segment 06-D24-00-6E (Table 8). The sediment samples collected from two pipe sections removed from trench segment 06-D24-00-6E identified ¹³⁷Cs activity above the release limit at 0.1275 pCi/g and 0.2809 pCi/g. Due to the presence of ¹³⁷Cs activity above the release criterion in two pipe sections, sediment samples with identified ¹³⁷Cs activity were sent to the off-site laboratory for total Sr analysis. The off-site analytical results for the one of the two samples indicated the presence of Sr activity at 0.3350 pCi/g above the release criterion. The sediment sample analytical reports are provided in Appendix M. Both sections of pipe containing contaminated sediment were placed in a LLRW bin for disposal by the Navy's LLRW contractor.

Radiological surveys were performed for the staged pipe sections during the Parcel D-1 removal action activities. No elevated results were identified for any of the Trench SU 253 piping surveyed.

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 253 Project Report*. Two out of 18 systematic samples had reported ^{137}Cs levels greater than the MDA; however, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Twelve of 18 systematic samples had reported ^{226}Ra levels greater than the MDA, with one sample (06-PD1T-253-003) exceeding the project release criterion of 1.485 pCi/g for ^{226}Ra .

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . One of the three samples had a reported detection of total Sr above the MDL; however, the reported result was below the project release criterion of 0.331 pCi/g for ^{90}Sr . The remaining total Sr results were below the MDL and therefore, below the project release criterion for ^{90}Sr .

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the SU 253 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. No elevated areas were identified. A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H).

Remediation activities were performed over a 95-square-foot area that encompassed the area represented by sample 06-PD1T-253-003, which exceeded the project release criterion for ^{226}Ra . Soil was removed to a depth of 0.5 feet below the trench surface, thus resulting in the removal of approximately 1.75 cy of material that was disposed as low-level radioactive waste. Post-remediation scans were performed to identify the highest locations for collection of post-remediation samples. Seven post-remediation samples (06-PD1T-253-019 and 06-PD1T-253-119 to 06-PD1T-253-124) were collected at and around the original location of sample 06-PD1T-253-003, and results were below project release criteria for all ROCs, as shown in Table 3-2 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H). Post-remediation static gamma measurements were collected at the original sample location and at five locations along the edge of the additional excavation. All results were below project investigation levels.

A second set of systematic samples (samples 06-PD1T-253-101 through 06-PD1T-253-118) were collected following the remediation of 06-PD1T-253-003. On-site screening results from

these samples (Appendix A of the *Final Survey Unit 253 Project Report* [Shaw, 2012f]) were below release criteria, and therefore, the sample set was sent for final analysis at TestAmerica St. Louis. These off-site systematic sampling results for the project ROCs are summarized in Table 3-3 of the *Final Survey Unit 253 Project Report*, and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 253 Project Report*. Eight out of 18 systematic samples had reported ^{137}Cs levels greater than the MDL; and two of the samples (06-PD1T-253-105 and 06-PD1T-253-112) exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Seventeen of 18 systematic samples had reported ^{226}Ra levels greater than the MDL; however, none of the samples exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra .

Four of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . Two of the four samples had a reported total Sr above the MDL; however, the reported results were below the project release criterion of 0.331 pCi/g for ^{90}Sr . The remaining total Sr results were below the MDA and therefore, below the project release criterion for ^{90}Sr .

Remedial activities were performed over a 50-square-foot area that encompassed the area represented by sample 06-PD1T-253-105, which exceeded the project release criterion for ^{137}Cs . Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 1.85 cy of material that was disposed as low-level radioactive waste. Post-remediation scans were performed to identify the highest locations for collection of post-remediation samples. Five post-remediation samples (06-PD1T-253-125 to 06-PD1T-253-129) were collected at and around the original location of sample 06-PD1T-253-105, and results for all ROCs were below project release criteria as shown in Table 3-4 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H). Post-remediation static gamma measurements were collected at the original sample location and at four locations along the edge of the additional excavation. All results were below project investigation levels.

Remedial activities were also performed over a 75-square-foot area that encompassed the area represented by sample 06-PD1T-253-112, which exceeded the project release criterion for ^{137}Cs . Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 2.78 cy of material that was disposed as low-level radioactive waste. Post-remediation scans were performed to identify the highest locations for collection of post-remediation samples. Six post-remediation samples (06-PD1T-253-130 to 06-PD1T-253-135) were collected at and around the original location of sample 06-PD1T-253-112, and results for all ROCs were below project release criteria as shown in Table 3-4 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H). Post-remediation static gamma measurements were collected at the original sample location and

at four locations along the edge of the additional excavation. All results were below project investigation levels.

A third set of systematic samples (samples 06-PD1T-253-201 through 06-PD1T-253-218) were collected following the remediation of 06-PD1T-253-105 and 06-PD1T-253-112. On-site screening results from these samples (Appendix A) were below release criteria, and therefore, the sample set was sent for final analysis at TestAmerica St. Louis. These off-site systematic sampling results for the project ROCs are summarized in Table 3-5 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 253 Project Report*. Three of 18 systematic samples had reported ^{137}Cs levels greater than the MDL, and one result (06-PD1T-253-201) exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . All 18 systematic samples had reported ^{226}Ra levels greater than the MDL; however, none of the samples exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra .

Four of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . One of the four samples had a reported total Sr above the MDA; however, the reported result was below the project release criterion of 0.331 pCi/g for ^{90}Sr . The remaining total Sr results were below the MDA and therefore, below the project release criterion for ^{90}Sr .

Remedial activities were performed over a 50-square-foot area that encompassed the area represented by sample 06-PD1T-253-201, which exceeded the project release criterion for ^{137}Cs . Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 1.8 cy of material that was disposed as low-level radioactive waste. Post-remediation scans were performed to identify the highest locations for collection of post-remediation samples. Six post-remediation samples (06-PD1T-253-219 to 06-PD1T-253-224) were collected at and around the original location of sample 06-PD1T-253-201, and results for all ROCs were below project release criteria as shown in Table 3-6 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H). Post-remediation static gamma measurements were collected at the original sample location and at four locations along the edge of the additional excavation. All results were below project investigation levels.

4.4.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 253 remained in place following the completion of the removal action.

4.4.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan*,

Version 6.0 (PNNL, 2010). Final systematic samples were collected from 18 locations on September 29, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-7 of the *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of *Final Survey Unit 253 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, this result did not exceed the project release criterion for ^{137}Cs (0.113 pCi/g). Seventeen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no samples exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . Neither of the samples had a reported total Sr above the MDL and therefore, were below the project release criterion for ^{90}Sr .

For the FSS, Trench SU 253 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 253 were 0.050 pCi/g for ^{137}Cs , 0.198 pCi/g for ^{90}Sr , and 0.868 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.043 pCi/g for ^{137}Cs , 0.146 pCi/g for ^{90}Sr , and 0.336 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used in Trench SU 253 resulted in a maximum above-background dose of 2.1 mrem/yr and an ELCR of 4E-05. The model of Trench SU 253 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2.5E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two dose calculations are presented in Appendix D and are summarized in Table 6-2 of *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 253 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.

- Analytical results from the radiologically-screened excavated soil were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used in Trench SU 253 resulted in a maximum above-background dose of 2.1 mrem/yr and an ELCR of 4E-05. The model of Trench SU 253 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2.5E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H) was issued in October 2012.

4.4.4 Backfill Activities

ESU 357 (160 cy) was used to backfill Trench SU 253. The analytical data from the screening activities at ESU 357 is presented in Table 3-8 of *Final Survey Unit 253 Project Report* (Shaw, 2012f; Appendix H). Final data from ESU 357 were provided by the HPNS on-site radiological laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data package prepared by the Basewide Radiological Contractor for ESU 357 is presented in Appendix C of *Final Survey Unit 253 Project Report*.

A stormwater swale was constructed on top of the footprint of Trench SU 253. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks.

4.5 Trench Survey Unit 254

SU 254 consists of Trench Unit 254 and a volume of excavated and imported fill material used for backfill. The location of SU 254 within Parcel D-1 is shown on Figure 5. SU 254 consists of seven trench segments (06-D24-35-2A, 06-D24-35-2B, 06-D24-35-2C, 06-D24-35-2D, 06-D24-35-2E, 06-D24-35-2F, and 06-D24-35-4G) located in WA 24. Portions of SU 254 are located beneath or adjacent to the footprint of the Former Buildings 313, 313A, and 322 Sites. The total surface area was approximately 4,411 ft² (410 m²) of actual excavated trench in varying depths between 5 and 5.5 feet bgs. Approximately 509 cubic yards (cy) of soil were excavated from SU 254.

4.5.1 Removal Action Activities

Excavation of SU 254 was initiated on February 22, 2011, in trench segment 06-D24-35-2F, and removal of the pipe and soil was completed on April 12, 2011. A total of 75 truckloads

(approximately 750 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 and RSY3 for processing.

Approximately 329 linear feet of pipe was removed from Trench SU 254 during excavation activities. Pipe was found in trench between 4 to 6.5 feet bgs. Trench segments 06-D24-35-2A and 06-D24-35-2F contained a 24-inch diameter VCP. Trench segments 06-D24-35-2B, 06-D24-35-2C, and 06-D24-35-4G contained a 6-inch diameter VCP. Trench segments 06-D24-35-2D and 06-D24-35-2E contained a 3-inch and 2-inch diameter metal pipes, respectively. Majority of the metal sections were excavated out and placed on plastic sheeting pending further investigation. Portions of the pipe, in particular, VCP, that were crushed or disintegrated upon removal were sent to the Basewide Radiological Contractor's RSY2 along with the excavated soil for processing.

Two manholes (MH700 and MH701) were associated with Trench SU 254 as shown on the Design Drawings (Shaw, 2010f and 2010g) (Table 9). MH700 was removed on February 22, 2011, as part trench segment 06-D24-35-2F excavation. MH701 could not be located. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 254. Consequently, there are no sediment sample analytical results associated with Trench SU 254. MH700 was surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 254 Project Report*. None of the systematic samples had reported ^{137}Cs levels greater than the MDA; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Twelve of the 18 systematic samples reported ^{226}Ra levels greater than the MDA, and one of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g) (06-PD1T-254-006).

Two of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . One of the results (06-PD1T-254-006) was equal to the project release criterion for ^{90}Sr (0.331 pCi/g). Sample 06-PD1T-254-006 was then analyzed directly for ^{90}Sr , and the reported result (0.666 pCi/g) also exceeded the ^{90}Sr criterion.

Remedial activities were performed over an approximate 100-ft² area that encompassed the area represented by sample 06-PD1T-254-006. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 3.7 cy of material that were transferred to the Navy's LLRW contractor for disposition. Six post-remediation samples (06-PD1T-254-019 to 06-PD1T-260-024) were collected in the vicinity of the original location of sample 06-PD1T-254-006, and all results were below project release criteria as shown in

Table 2. Six post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Shaw, 2012g; Appendix H]).

After remediation, a second set of systematic samples was taken (samples 06-PD1T-254-101 through 06-PD1T-254-118). The systematic sampling results for the project ROCs are summarized in Table 3-3 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 254 Project Report*. None of the systematic samples had reported ^{137}Cs levels greater than the MDA; therefore, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Fifteen of the 18 systematic samples had reported ^{226}Ra levels greater than the MDA; and two of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g) (06-PD1T-254-104 and 06-PD1T-254-107).

Remedial activities were performed over an approximate 100-ft² area that encompassed the immediate area represented by samples 06-PD1T-254-104 and 06-PD1T-254-107. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 3.7 cy of material that were transferred to the Navy's LLRW contractor for disposition. In addition, an additional 18 inches of soil were removed from the bottom and sides of SU 254, thus resulting in the removal of approximately 290 cy of soil, which were processed by the HPNS RSY. After remediation, a third set of systematic samples (06-PD1T-254-201 through 06-PD1T-254-218) was taken. The systematic sampling results for the project ROCs are summarized in Table 3-4 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 254 Project Report*. The screening data from the HPNS on-site radiological laboratory met the project release criteria, and the samples were forwarded to the off-site laboratory for final analysis. None of the systematic samples had reported ^{137}Cs levels greater than the MDL; therefore, none of the results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Sixteen of the 18 systematic samples had reported ^{226}Ra levels greater than the MDL; and one of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g) (06-PD1T-254-210).

Two of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . Both results were below the MDL and therefore, were below the project release criterion for ^{90}Sr (0.331 pCi/g).

Prior to remedial activities, six bounding samples (06-PD1T-254-219 to 06-PD1T-254-224) were collected in the vicinity of the original location of sample 06-PD1T-254-210, and all results were below project release criteria as shown in Table 3-5 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six bounding static gamma measurements were collected in the

vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Appendix H]).

Remedial activities were performed over an approximate 100-ft² area that encompassed the area represented by sample 06-PD1T-254-210. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 3.7 cy of material that were transferred to the Navy's LLRW contractor for disposition. Eight post-remediation samples (06-PD1T-254-225 to 06-PD1T-254-232) were collected in the vicinity of the original location of sample 06-PD1T-254-210, and one result exceeded the project release criteria for ²²⁶Ra (06-PD1T-254-231), as shown in Table 3-6 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Shaw, 2012g; Appendix H]).

Prior to remedial activities, six bounding samples (06-PD1T-254-233 to 06-PD1T-254-238) were collected in the vicinity of the original location of sample 06-PD1T-254-231, and one result exceeded the project release criteria for ²²⁶Ra (06-PD1T-254-237), as shown in Table 3-7 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Shaw, 2012g; Appendix H]).

Remedial activities were performed over an approximate 100- ft² area that encompassed the area represented by samples 06-PD1T-254-231 and 06-PD1T-254-237. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 3.7 cy of material that were transferred to the Navy's LLRW contractor for disposition. Eight post-remediation samples (06-PD1T-254-239 to 06-PD1T-254-246) were collected in the vicinity of the original location of samples 06-PD1T-254-231 and 06-PD1T-254-237, and all results were below project release criteria as shown in Table 3-8 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Eight post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Shaw, 2012g; Appendix H]).

After remediation, a fourth set of systematic samples (06-PD1T-254-301 through 06-PD1T-254-318) was collected. The systematic sampling results for the project ROCs are summarized in Table 3-9 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 254 Project Report*. None of the systematic samples had reported ¹³⁷Cs levels greater than the MDA; therefore, none of the results exceeded the project

release criterion for ^{137}Cs (0.113 pCi/g). Seventeen of the 18 systematic samples had reported ^{226}Ra levels greater than the MDA, and two of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g) (06-PD1T-254-305 and 06-PD1T-254-308).

Prior to remedial activities, six bounding samples (06-PD1T-254-319 to 06-PD1T-254-324) were collected in the vicinity of the original location of sample 06-PD1T-254-305, and all results were below project release criteria as shown in Table 3-10 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report* [Shaw, 2012g]).

Remedial activities were performed over an approximate 100- ft² area that encompassed the area represented by sample 06-PD1T-254-305. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 3.7 cy of material that were transferred to the Navy's LLRW contractor for disposition. Six post-remediation samples (06-PD1T-254-325 to 06-PD1T-254-330) were collected in the vicinity of the original location of sample 06-PD1T-254-305, and all results were below project release criteria as shown in Table 3-11 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Prior to remedial activities, six bounding samples (06-PD1T-254-331 to 06-PD1T-254-336) were collected in the vicinity of the original location of sample 06-PD1T-254-308, and two results exceeded the project release criteria for ^{226}Ra (06-PD1T-254-331 and 06-PD1T-254-335) as shown in Table 3-12 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 400-ft² area that encompassed the area represented by sample 06-PD1T-254-308. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 14.8 cy of material that were transferred to the Navy's LLRW contractor for disposition. Six post-remediation samples (06-PD1T-254-337 to 06-PD1T-254-342) were collected in the vicinity of the original location of sample 06-PD1T-254-308, and all results were below project release criteria as shown in Table 3-13 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Prior to remedial activities, four bounding samples (06-PD1T-254-343 to 06-PD1T-254-346) were collected in the vicinity of the original location of sample 06-PD1T-254-331, and one result exceeded the project release criteria for ^{226}Ra (06-PD1T-254-346) as shown in Table 3-14 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Four bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 50-square-foot area that encompassed the area represented by sample 06-PD1T-254-331. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 2.3 cy of material that were transferred to the Navy's LLRW contractor for disposition. Six post-remediation samples (06-PD1T-254-347 to 06-PD1T-254-352) were collected in the vicinity of the original location of sample 06-PD1T-254-331, and two results exceeded the project release criteria for ^{226}Ra (06-PD1T-254-347 and 06-PD1T-254-349) as shown in Table 3-15 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). Six post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-335. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-353) was collected directly over the original location of sample 06-PD1T-254-335, and the result was below project release criteria as shown in Table 3-16 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-308. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-354) was collected directly over the original location of sample 06-PD1T-254-308, and the result was below project release criteria as shown in Table 3-16 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-331. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-355) was collected directly over the original location of sample 06-PD1T-254-331, and the result was below project release criteria as shown in Table 3-16 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-305. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-356) was collected directly over the original location of sample 06-PD1T-254-305, and the result was below project release criteria as shown in Table 3-17 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-346. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-357) was collected directly over the original location of sample 06-PD1T-254-346, and the result was below project release criteria as shown in Table 3-17 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-347. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-358) was collected directly over the original location of sample 06-PD1T-254-347, and the result was below project release criteria as shown in Table 3-17 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H).

One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

Remedial activities were performed over an approximate 9-square-foot area that encompassed the area represented by sample 06-PD1T-254-349. Soil was removed to a depth of 3 foot below the trench surface, thus resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-254-359) was collected directly over the original location of sample 06-PD1T-254-349, and the result was below project release criteria as shown in Table 3-17 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H). One post-remediation static gamma measurement was collected directly over the original sample location, and the result was below project investigation levels (Appendix B of the *Final Survey Unit 254 Project Report*).

In total, 147 soil samples (including bounding, post-remediation, and systematic samples) were collected and 331.6 cy of soil was remediated from Trench SU 254 during Parcel D-1 removal activities.

4.5.2 Piping Remaining in Place

No known SD or SS piping associated with SU254 remained in place following the completion of the removal action.

4.5.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010).

The final set of systematic samples was composed of samples 06-PD1T-254-301 to 06-PD1T-254-304, 06-PD1T-254-306, 06-PD1T-254-307, and 06-PD1T-254-309 to 06-PD1T-254-318 collected on February 16, 2012, and samples 06-PD1T-254-354 and 06-PD1T-254-356 collected on April 20, 2012, and June 19, 2012, respectively. Samples 06-PD1T-254-354 and 06-PD1T-254-356 are representative of samples 06-PD1T-254-308 and 06-PD1T-254-305, respectively, after remediation and re-sample of the exact area where those samples were located. The final systematic sampling results for the project ROCs are summarized in Table 3-18 of the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 254 Project Report*. None of the 18 systematic samples had reported ^{137}Cs levels greater than the MDL; therefore, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . All 18 systematic samples had reported

^{226}Ra levels greater than the MDL; however, none of the results exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra .

Three out of the final 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . All results were below the MDL and therefore, were below the project release criterion of 0.331 pCi/g for ^{90}Sr .

For the FSS, SU 254 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in SU 254 were 0.038 pCi/g for Cs-137, 0.084 pCi/g for Sr-90, and 0.587 pCi/g for Ra-226. The trench unit average net residual radioactivity concentrations were 0.042 pCi/g for Cs-137, 0.178 pCi/g for Sr-90, and 0.663 pCi/g for Ra-226. The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at SU 254 resulted in a maximum above-background dose of 0.1 millirem per year (mrem/yr) and an ELCR of 2E-06. The model of the Trench SU 254 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling is required. The RESRAD (ANL, 2009) output files for the two SU 254 dose calculations are presented in Appendix D and are summarized in Table 6-2 of *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H).

No further action is required, and unrestricted release is recommended for SU 254 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 254 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. The model of the Trench SU 254 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. Dose and risk modeling demonstrated that the residual dose and risk

under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H) was issued in October 2012.

4.5.4 Backfill Activities

Excavated soil from ESU 345 (50 cy) was used in part to backfill SU 254. The analytical data from the screening activities at ESU 345 are presented in Table 3-19. Final data from ESU 345 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data package prepared by the on-site laboratory and TestAmerica St. Louis for ESU 345 is presented in Appendix C of *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H).

Approximately 459 cy of imported fill material from the Jericho import fill source were used to backfill SU 254. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.6 Trench Survey Unit 255

Trench SU 255 included trench segment 06-D24-00-6E and a volume of radiologically-screened excavated soil used for backfill. The location of SU 255 is shown on Figure 5. Trench SU 255 is located along Manseau Street in WA 24, adjacent to trench segments from Trench SU 252. Approximately 90 cy of soil were excavated from Trench SU 255. The estimated surface area of the excavated surfaces for Trench Unit 255 was 1,096 ft² (102 m²). Trench SU 255 was excavated to depths of 5 to 6 feet bgs.

4.6.1 Removal Action Activities

Excavation of Trench SU 255 commenced on November 8, 2010, in trench segment 06-D24-00-6E, and removal of the pipe and soil was completed on November 9, 2010. A total of 9 truckloads (approximately 90 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 57 linear feet of pipe was removed from Trench SU 255. Pipe was found in the trench between 4 and 5 feet bgs. Trench segment 06-D24-00-6E contained a 30-inch diameter RCP. The majority of the RCP sections were excavated out and placed on plastic sheeting pending further investigation. Portions of the pipe that were crushed or disintegrated upon removal were sent to the Basewide Radiological Contractor's RSY2 along with the excavated soil for processing. No manhole was removed from Trench SU 255.

Sufficient sediment for sample collection and analysis was found in one pipe section (Table 8). The sediment sample collected from trench segment 06-D24-00-6E identified ¹³⁷Cs activity

above the release criterion at 0.1902 pCi/g. Due to the presence of ^{137}Cs activity above the release criterion, the sediment sample with was sent to the off-site laboratory for total Sr analysis. The off-site analytical did not indicate the presence of radioactivity above the release criterion for total Sr. The sediment sample analytical reports are provided in Appendix M. Pipe sections containing contaminated sediment were placed in LLRW bins for disposal by the Navy's LLRW contractor.

Radiological surveys were performed for the staged pipe sections during the Parcel D-1 removal action activities. No elevated results were identified for any of the Trench SU 255 piping surveyed.

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 255 Project Report* (Shaw, 2012h; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 255 Project Report*. Fourteen of the 18 systematic samples reported ^{137}Cs levels greater than the MDA with one sample (06-PD1T-255-005) exceeding the project release criterion of 0.113 pCi/g for ^{137}Cs . All 18 systematic samples reported ^{226}Ra levels greater than the MDA, with one sample (06-PD1T-255-006) exceeding the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the original 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . No samples reported above the MDL; therefore, none of the results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the Trench SU 255 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. Three locations were selected to further investigate potentially anomalous measurements (discussed further in Appendix B of the *Final Survey Unit 255 Project Report* [Shaw, 2012h]). One additional biased sample (06-PD1T-255-019) was collected, and all screening results were below project release criteria as shown in Table 3-2 of the *Final Survey Unit 255 Project Report*. A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 255 Project Report*.

Remedial activities were performed over an approximate 100-square-foot area that encompassed the area represented by samples 06-PD1T-255-005 and 06-PD1T-255-006. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 3.7 cy of material that was disposed as low-level radioactive waste. Five post-remediation samples (06-PD1T-255-020 through 06-PD1T-255-025) were collected at the boundary of the remediation area, and all results were below project release criteria as shown in Table 3-3 of the

Final Survey Unit 255 Project Report (Shaw, 2012h; Appendix H). Five post-remediation static gamma measurements were collected along the boundary of the additional excavation, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 255 Project Report*).

4.6.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 255 remained in place following the completion of the removal action.

4.6.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 19, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-4 of the *Final Survey Unit 255 Project Report* (Shaw, 2012h; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of *Final Survey Unit 255 Project Report*. One of the final 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All of the final 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the final 18 systematic samples were analyzed off site for total Sr. One of the results for total Sr exceeded the MDL; however, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 255 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 255 were 0.047 pCi/g for ^{137}Cs , 0.198 pCi/g for ^{90}Sr , and 0.869 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.176 pCi/g for ^{90}Sr , and 0.476 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material resulted in a maximum above-background dose of 1.7 mrem/yr and an ELCR of 3E-05. The model of the trench SU resulted in a maximum above-background dose of 0.14 mrem/yr and an ELCR of 2E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD

output files for the two dose calculations are presented in Appendix D and are summarized in Table 6-2 of *Final Survey Unit 255 Project Report* (Shaw, 2012h; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 255 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and import fill soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA (TtEC, 2011b) have been met.
- The model of the backfill material resulted in a maximum above-background dose of 1.7 mrem/yr and an ELCR of 3E-05. The model of the trench SU resulted in a maximum above-background dose of 0.14 mrem/yr and an ELCR of 2E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 255 Project Report* (Shaw, 2012h; Appendix H) was issued in October 2012.

4.6.4 Backfill Activities

Soil from ESU 358 (approximately 90 cy) was used to backfill the bottom portion of Trench SU 255. The analytical data from the screening activities at ESU 358 are presented in Table 3-5 of *Final Survey Unit 255 Project Report* (Shaw, 2012h; Appendix H). Final data from ESU 358 were provided by the HPNS on-site radiological laboratory per the SUPRA Revision 3 (TtEC, 2011a). The analytical data package prepared by the Basewide Radiological Contractor and TestAmerica St. Louis for ESU 358 is presented in Appendix C of *Final Survey Unit 255 Project Report*.

A stormwater swale was constructed on top of the footprint of Trench SU 255. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks.

4.7 Trench Survey Unit 256

Trench SU 256 included one trench segment (06-D24-35-2H) located partially underneath Building 274 and a volume of imported fill material used for backfill. The location of Trench SU 256 is shown on Figure 5. The total excavated surface area was approximately 1,045 ft² (97 m²) with excavation depths varying between 0.5 and 4 feet bgs. Approximately 48 cy of soil were excavated from Trench SU 256.

4.7.1 Removal Action Activities

Excavation of Trench SU 256 commenced on October 18, 2010, in trench segment 06-D24-35-2H located outside Building 274 to the southwest. The trench was excavated to approximately 6 feet bgs, but the pipe line could not be located. Excavation of Trench SU 256 was suspended on October 20, 2010, pending radiological release of Building 274. Pipe removal at Trench SU 256 continued inside Building 274 on March 12, 2012, and was completed on March 22, 2012. A total of 9 truckloads (approximately 90 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 and RSY4 for processing.

Approximately 179 linear feet of pipe was removed from Trench SU 256 during excavation activities. Trench SU 256 pipe was found in the trench between 0 and 3 feet bgs inside Building 274. All trench segments contained 2-inch to 4-inch diameter metal pipes. All metal pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipes were placed in LLRW bins for disposal by the Navy's LLRW contractor. No manholes were removed from Trench SU 256.

Adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 256. Consequently, there are no sediment sample analytical results associated with Trench SU 256.

4.7.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 256 remained in place following the completion of the removal action.

4.7.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on March 23, 2012, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 256 Project Report* (Shaw, 2012i; Appendix H), and analytical data packages

received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 256 Project Report*. Two of the systematic samples reported ^{137}Cs levels greater than the MDA; no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Fifteen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . One sample result was reported above the MDL; however all of the results were below the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 256 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 256 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.195 pCi/g for ^{90}Sr , and 0.426 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 256 resulted in a maximum above-background dose of 0.06 mrem/yr and an ELCR of 1E-06. The model of Trench SU 256 resulted in a maximum above-background dose of 0.1 mrem/yr and a ELCR of 2E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 256 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 256 Project Report* (Shaw, 2012i; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 256 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.

- The model of the backfill material used at SU 256 resulted in a maximum above-background dose of 0.06 mrem/yr and an ELCR of 1E-06. The model of the Trench SU 256 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 256 Project Report* (Shaw, 2012i; Appendix H) was issued in October 2012.

4.7.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 256 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 256. Approximately 48 cy of imported fill material from the Jericho import fill source were used to backfill Trench SU 256 to the southwest of Building 274. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). Per discussion with the Navy, open trenches inside Building 274 were not backfilled.

4.8 Trench Survey Unit 257

Trench SU 257 included trench segment 06-D24-00-6K and a volume of radiologically-screened excavated soil used for backfill. The location of Trench SU 257 is shown on Figure 5. Trench SU 257 is located along Manseau Street in Parcel D-1, adjacent to segments from Trench SU 252. Approximately 300 cy of material were excavated from Trench SU 257. The estimated excavated surface area for Trench SU 257 is 2,062 ft² (192 m²) with excavated depths varying between approximately 5.5 and 7 feet bgs. Trench SU 257 is 102 feet (31 meters) in length.

4.8.1 Removal Action Activities

Excavation of Trench SU 257 commenced on November 10, 2010, in trench segment 06-D24-00-6K. Removal of the pipe and soil associated with this trench SU was completed in the same day. A total of 30 truckloads (approximately 300 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 102 linear feet (31 meters) of pipe was removed from Trench SU 257 during excavation activities. Trench SU 257 pipe was found between 4.5 and 6 feet bgs. Trench segment 06-D24-00-6K contained a 36-inch diameter RCP. Majority of the RCP sections were excavated out and placed on plastic sheeting pending further investigation. Portions of the pipe that were crushed or disintegrated upon removal were sent to the Basewide Radiological Contractor's

RSY2 along with the excavated soil for processing. No manhole was removed from Trench SU 257.

Sufficient sediment for sample collection and analysis was found in three pipe sections (Table 8). The analytical results for the sediment samples collected from one section of trench segment 06-D24-00-6K pipes did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample collected from two pipe sections removed from trench segment 06-D24-00-6K identified ^{137}Cs activity above the release criterion at 0.1183 pCi/g and 0.2019 pCi/g. Due to the presence of ^{137}Cs activity above the release criterion in two pipe sections, all sediment samples with identified ^{137}Cs activity were sent to the off-site laboratory for total Sr analysis. The off-site analytical did not indicate the presence of radioactivity above the release criterion for total Sr. The sediment sample analytical reports are provided in Appendix M. Pipe sections containing contaminated sediment were placed in LLRW bins for disposal by the Navy's LLRW contractor (Table 8).

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 257 Project Report*. Ten of the 18 systematic samples reported ^{137}Cs levels greater than the MDA; however, none of the results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Sixteen of 18 systematic samples reported ^{226}Ra levels greater than the MDA, with one sample (06-PD1T-257-016) exceeding the project release criterion for ^{226}Ra (1.485 pCi/g).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the Trench SU 257 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. No areas were identified that were above the investigation level of the instrument used. A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H).

Remedial activities were performed over approximately 40.55 square feet of area that encompassed the area represented by sample 06-PD1-SP-257-016. Soil was removed to a depth of 0.5 foot below the trench surface, resulting in the removal of approximately 1.5 cy of material that was disposed as low-level radioactive waste. Initially, one (06-PD1T-257-019) and then six additional post-remediation samples (06-PD1T-257-119 through 06-PD1T-257-124) were collected at the original location of sample 06-PD1T-257-016 and at locations bounding the original elevated sample. All post-remediation results were below project release criteria as shown below in Table 3-2 of the *Final Survey Unit 257 Project Report* (Shaw, 2012j;

Appendix H). Analytical data from the post-remediation sampling are presented in Appendix A of the *Final Survey Unit 257 Project Report*.

4.8.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 257 remained in place following the completion of the removal action.

4.8.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 19, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-3 of the *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 257 Project Report*. None of the final systematic samples reported ^{137}Cs levels greater than the MDL; no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 final systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 final systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . The results for total Sr did not exceed the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 257 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 257 were 0.046 pCi/g for ^{137}Cs , 0.191 pCi/g for ^{90}Sr , and 0.840 pCi/g for ^{226}Ra . The trench SU average net residual radioactivity concentrations were 0.037 pCi/g for ^{137}Cs , 0.162 pCi/g for ^{90}Sr , and 0.342 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 257 resulted in a maximum above-background dose of 1.7 mrem/yr and an ELCR of 3E-05. The model of the trench SU resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two dose calculations are presented in

Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 257 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no anomalies were identified.
- Radiologically-screened excavated soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 257 resulted in a maximum above-background dose of 1.7 mrem/yr and an ELCR of 3E-05. The model of the trench SU resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H) was issued in September 2012.

4.8.4 Backfill Activities

Soil from ESU 358 (50 cy) and ESU 359 (250 cy) were used to backfill Trench SU 257. Final data from ESUs 358 and 359 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data from the screening activities at each ESU are presented in Tables 3-4 and 3-5 of the *Final Survey Unit 257 Project Report* (Shaw, 2012j; Appendix H). The analytical data packages prepared by the Basewide Radiological Contractor and Test America St. Louis for these ESUs are presented in Appendix C of the *Final Survey Unit 257 Project Report*.

A stormwater swale was constructed on top of the footprint of Trench SU 257. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench, followed by a layer of ½-inch to 2-inch diameter drain rocks.

4.9 Trench Survey Unit 259

Trench SU 259 included trench segments 06-D24-00-6K, 6M, -6N, -6O, -7A, -8A, -8B, and -8C and a volume of Navy-approved excavated and imported fill material used for backfill. The location of Trench SU 259 is shown on Figure 5. Trench SU 259 is located along Manseau Street and consists of one segment bordered on the north and west by Trench SU 252 and on the east by Trench SU 261. The total excavated surface area was approximately 4,425 ft² (411 m²) with excavation depths varying between 5 and 6 feet bgs. Approximately 490 cy of material was excavated from Trench SU 259.

4.9.1 Removal Action Activities

Excavation of Trench SU 259 commenced on November 10, 2010, in trench segment 06-D24-00-6K, and removal of the pipe and soil associated with this Trench SU was completed on November 29, 2010. A total of 49 truckloads (approximately 490 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 189 linear feet of pipe was removed from Trench SU 259 during excavation activities. Pipe was found in trench between 4 and 5 feet bgs. Trench segment 06-D24-00-6K, -6N, and -6O contained 36-inch diameter RCP. Trench segment 06-D24-00-6M contained 6-inch diameter steel pipe. Trench segments 06-D24-00-7A, -8A, and -8B contained 8-inch diameter VCP and trench segment 06-D24-00-8C contained 15-inch diameter RCP. Majority of the RCP and steel pipe were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the excavated pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor. Most of the VCP disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 along with the excavated soil for processing.

Four manholes were associated with Trench SU 259 (MH732, MH735, MH736, and MH737) (Table 9). MH732 was removed on November 11, 2010, and MH735, MH736, and MH737 were removed on November 12, 2010. Adequate volume of sediment for sample collection and analysis was not available from the manholes. All four manholes were radiologically surveyed. MH732 was disposed as LLRW and, MH735, MH736, and MH737 were released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

Sufficient sediment for sample collection and analysis was found in three pipe sections from trench segment 06-D24-00-6N (Table 8). The three sediment samples identified ¹³⁷Cs activity above the release criterion at 0.1585 pCi/g, 0.1455 pCi/g, and 0.2233 pCi/g. One sediment sample identified ²²⁶Ra above the release criterion at 1.4855 pCi/g. Due to the presence of ¹³⁷Cs activity above the release criterion, sediment samples were sent to the off-site laboratory for total

Sr analysis. The off-site analytical did not indicate the presence of radioactivity above the release criterion for total Sr. The sediment sample analytical reports are provided in Appendix M. Pipe sections containing contaminated sediment were placed in LLRW bins for disposal by the Navy's LLRW contractor.

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A. One of the 18 systematic samples reported ^{137}Cs screening levels greater than the MDA; however, no results exceeded the project release criterion for ^{137}Cs (0.113pCi/g). Thirteen of the 18 systematic samples reported ^{226}Ra levels greater than the screening MDA; and one of the results (06-PD1T-259-013) exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the SU 259 excavation using a 2 inch by 2 inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. No scanning measurements were identified above the instrument investigation level. A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H).

Remedial activities were performed over an approximate 145.2-square foot area that encompassed the area represented by sample 06-PD1T-259-013. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 5.4 cy of material that was disposed as low-level radioactive waste. Eight post-remediation samples (06 PD1T 259-024 and 06-PD1T-259-025 and 06-PD1T-259-119 through 06-PD1T-259-124) were collected at the original location and in the vicinity of sample 06-PD1T-259-013, and all results were below project release criteria as shown below in Table 3-2 of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H).

4.9.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 259 remained in place following the completion of the removal action.

4.9.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 19, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-3 of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 259 Project Report*. Two of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . The results for total Sr did not exceed the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 259 was defined as the sum of the trench SU and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 259 were 0.041 pCi/g for ^{137}Cs , 0.122 pCi/g for ^{90}Sr , and 0.625 pCi/g for ^{226}Ra . The trench SU average net residual radioactivity concentrations were 0.036 pCi/g for ^{137}Cs , 0.154 pCi/g for ^{90}Sr , and 0.418 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 259 resulted in a maximum above-background dose of 1.891 millirems per year (mrem/yr) and an ELCR of 3.239E-05. The model of Trench SU 259 resulted in a maximum above-background dose of 0.3232 mrem/yr and an ELCR of 4.330E-06. These results meet the project dose and risk criteria, and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 259 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 259 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported soil used for backfill met the project release criteria.

- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 259 resulted in a maximum above-background dose of 1.891 mrem/yr and an ELCR of 3.239E-05. The model of Trench SU 259 resulted in a maximum above-background dose of 0.3232 mrem/yr and an ELCR of 4.330E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H) was issued in September 2012.

4.9.4 Backfill Activities

ESUs 360 (170 cy), 361 (250 cy), and 362 (20 cy) were used in part to backfill Trench SU 259. Final data from ESUs 360 and 361 were provided by the HPNS on-site radiological laboratory, per the SUPRA Revision 3 (TtEC, 2011a). Final data from ESU 362 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at ESUs 360, 361, and 362 are presented in Tables 3-4 through 3-6, respectively. The analytical data packages prepared by TtEC and TestAmerica for these ESUs are presented in Appendix C of the *Final Survey Unit 259 Project Report* (Shaw, 2012l; Appendix H).

In addition to the radiologically-screened excavated soil, approximately 50 cy of imported fill material from Jericho import fill source were also used to backfill SU 259. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

A stormwater swale was constructed on top of the footprint of Trench SU 259. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks.

4.10 Trench Survey Unit 261

Trench SU 261 included trench segments 06-D24-00-6O, -6P, and -6S and 06-D24-32-6O, -6P, -6Q, -6R, and -6S and a volume of excavated and imported fill material used for backfill. The location of Trench SU 261 is shown on Figure 5. Trench SU 261 is located near the base of GMP within WA 24 in Parcel D-1. The total excavated surface area was approximately 6,403 ft² (595 m²) with excavation depths varying between 4.2 and 5.5 feet bgs. Approximately 810 cy of soil were excavated from Trench SU 261.

4.10.1 Removal Action Activities

Excavation of Trench SU 261 commenced on November 29, 2010, in trench segment 06-D24-00-6O, and removal of the pipe and soil was completed on December 2, 2010. A total of 81 truckloads (approximately 810 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 338 linear feet of pipe was removed from Trench SU 261. Pipe was found in the trench between 3.2 and 4.5 feet bgs. Trench segments 06-D24-00-6O and 06-D24-32-6O contained 36-inch diameter RCP. Trench segment 06-D24-00-6S, 06-D24-32-6R, and 06-D24-32-6S contained 15-inch diameter RCP. Trench segments 06-D24-00-6P and -6Q, and 06-D24-32-6P contained 6-inch to 8-inch diameter steel pipe. All removed metal pipes were placed in LLRW bins for disposal by the Navy's LLRW contractor. All RCP sections were radiologically surveyed, released, and disposed of as general construction debris. Pipes or portions of the pipe that were crushed and were less than 6-inch in any directions were sent to the Basewide Radiological Contractor's RSY2 along with the excavated soil.

An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 261. Consequently, there are no sediment sample analytical results associated with Trench SU 261.

Five manholes (MH707, MH708, MH738, MH739, and MH748) were removed from Trench SU 261 (Table 9). The manholes were removed from November 29 through December 1, 2010. Insufficient sediment was found for sample collection and analysis. All five manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

4.10.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 261 remained in place following the completion of the removal action.

4.10.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on March 8, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 261 Project Report* (Shaw, 2012n; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 261 Project Report*. None of the 18 systematic samples reported ¹³⁷Cs levels

greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . One of the three samples (06-PD1T-261-003) had a detected total Sr result that exceeded the project ^{90}Sr release criterion of 0.331 pCi/g. As a result of the total Sr result, sample 06-PD1T-261-003 was analyzed for isotopic ^{90}Sr . The ^{90}Sr result was -0.424 pCi/g, which is below the release criterion.

For the FSS, Trench SU 261 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 261 were 0.040 pCi/g for ^{137}Cs , 0.092 pCi/g for ^{90}Sr , and 0.420 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.232 pCi/g for ^{90}Sr , and 0.338 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 261 resulted in a maximum above-background dose of 0.09 mrem/yr and an ELCR of $1\text{E } 06$. The model of Trench SU 261 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of $8\text{E}-06$. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 261 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 261 Project Report* (Shaw, 2012n; Appendix H).

No further action is required, and unrestricted release is recommended for SU 261 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.

- The model of the backfill material used at SU 261 resulted in a maximum above-background dose of 0.09 mrem/yr and an ELCR of 1E-06. The model of the Trench SU 261 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of 8E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 261 Project Report* (Shaw, 2012n; Appendix H) was issued in September 2012.

4.10.4 Backfill Activities

ESU 362 (20 cy) was used in part to backfill Trench SU 261. Final data from ESU 362 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at ESU 362 are presented in Table 3-2 of the *Final Survey Unit 261 Project Report* (Shaw, 2012n; Appendix H). The analytical data package prepared by TestAmerica St. Louis for this ESU is presented in Appendix C of the *Final Survey Unit 261 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 790 cy of imported fill material from the Jericho import fill source was also used to backfill SU 261. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

A stormwater swale was constructed on the southern end of Trench SU 261 footprint along Manseau Street. The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; followed by a layer of ½-inch to 2-inch diameter drain rocks.

4.11 Trench Survey Unit 264

Trench SU 264 included trench segments 06-D24-00-5A, -5B, -5C, -5D, -5E, and -5F and volumes of screened excavated soil and import fill material used for backfill. The location of Trench SU 264 is shown on Figure 5. Trench SU 264 is located in the northeastern corner of WA 24 in Parcel D-1. The footprint of Trench SU 264 was nonlinear in an affected area of approximately 260 feet by 120 feet (80 meters by 37 meters). The total excavated surface area was approximately 9,454 ft² (878 m²) with excavation depths varying between 3 and 5 feet bgs. Approximately 1,280 cy of soil were excavated from Trench SU 264.

4.11.1 Removal Action Activities

Excavation of Trench SU 264 commenced on October 25, 2010, in trench segment 06-D24-00-5D, and removal of the pipe and soil was completed on January 12, 2011. A total of 128 truckloads (approximately 1,280 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 568 linear feet of pipe was removed from Trench SU 264 during excavation activities. Pipe was found in the trench between 2 to 4 feet bgs. Trench segments 06-D24-00-5A and -5F contained 18-inch diameter VCP and trench segments 06-D24-00-5B, -5C, -5D, and -5E contained 3-inch to 10-inch metal pipe. All removed metal pipes were placed in LLRW bins for disposal by the Navy's LLRW contractor. All VCPs were crushed during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 264. Consequently, there are no sediment sample analytical results associated with Trench SU 264.

Trench segment 06-D24-00-5A was terminated at the Parcel D-1/Parcel C boundary. Trench segments 06-D24-00-5E and -5F were terminated at the outfalls along Berth No. 14. Three manholes (MH706, MH710, and MH714) were removed from Trench SU 264. MH714, MH710, and MH706 were removed from October 27, 2010, November 16, 2010, and November 24, 2010, respectively. Insufficient sediment was found for sample collection and analysis. All three manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

4.11.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 264 remained in place following the completion of the removal action.

4.11.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on March 9, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results are summarized as follows for the project ROCs in Table 3-1 of the *Final Survey Unit 264 Project Report* (Shaw, 2012q; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 264 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g). Two of 18 systematic samples were sent off site for total Sr analysis; one sample was reported above the MDL but below the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 264 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 264 were 0.040 pCi/g for ^{137}Cs , 0.139 pCi/g for ^{90}Sr , and 0.634 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.207 pCi/g for ^{90}Sr , and 0.443 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of Trench SU 264 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 264 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 264 Project Report* (Shaw, 2012q; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 264 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported fill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of Trench SU 264 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 264 Project Report* (Shaw, 2012q; Appendix H) was issued in September 2012.

4.11.4 Backfill Activities

ESUs 350, 354, 362, and 384 were used to backfill Trench SU 264 with approximate volumes of 120 cy, 70 cy, 210 cy, and 80 cy, respectively, used from each ESU. Final data from ESUs 350 and 354 were provided by the HPNS on-site radiological laboratory, per the SUPRA Revision 3 (TtEC, 2011a). Final data from ESUs 362 and 384 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at ESUs 350, 354, 362, and 384 are presented as follows in Tables 3-2 through 3-5 of the *Final Survey Unit 264 Project Report* (Shaw, 2012q; Appendix H), respectively. The analytical data packages prepared by the Basewide Radiological Contractor and/or TestAmerica St. Louis for ESUs 350, 354, 362, and 384 are presented in Appendix C of the *Final Survey Unit 264 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 800 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 264. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.12 Trench Survey Unit 265

Trench SU 265 included trench segments 06-D24-00-2F, 06-D24-00-2J, 06-D24-00-2K, 06-D24-00-2L, 06-D24-00-2M, and 06-D24-35-2F and a volume of excavated and imported fill material used for backfill. The location of Trench SU 265 is shown on Figure 5. Trench SU 265 is located in WA 24 between Berth 14 and “E” Street. The total surface area was approximately 5,826 ft² (541 m²) of actual excavated trench in varying depths between 4 and 8.5 feet bgs. Approximately 894 cubic yards (cy) of soil were excavated from Trench SU 265.

4.12.1 Removal Action Activities

Excavation of Trench SU 265 commenced on March 18, 2011, in trench segment 06-D24-35-2F, and removal of the pipe and soil was completed on April 12, 2011. A total of 63 truckloads of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor’s RSY2 for processing.

Approximately 233 linear feet of pipe was removed from Trench SU 265 during excavation activities. Pipe was found in the trench between 3 to 7.5 feet bgs. Trench segments 06-D24-35-2F, 06-D24-00-2F, 06-D24-00-2K, and 06-D24-00-2M contained 24-inch diameter VCP. Trench segments 06-D24-00-2J and -2L contained 8-inch and 12-inch VCP, respectively. All VCPs were disintegrated upon removal and transferred to the Basewide Radiological Contractor’s RSY2 or RSY3 along with excavated soil.

Trench segment 06-D24-00-2M was terminated at the outfall along Berth No. 14. Four manholes (MH704, MH705, MH712 and MH713) were removed from Trench SU 265. MH704 and MH705 were removed on March 21, 2011. MH712 and MH713 were removed on March 23, 2011, and March 22, 2011, respectively. Insufficient sediment was found for sample

collection and analysis. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 265. Consequently, there are no sediment sample analytical results associated with Trench SU 265. All four manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

The original systematic samples were collected from 18 locations, per the requirements of the Section 17.4 of the SAP (Appendix A of the D-1 Radiological Work Plan [Shaw, 2010b]). The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 265 Project Report*. One of the systematic samples reported ^{137}Cs levels greater than the MDA; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Fifteen of the 18 systematic samples reported ^{226}Ra levels greater than the MDA; and one of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g) (06-PD1T-265-017).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the Trench SU 265 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. Two points above the scan investigation level was identified; therefore, a follow-up survey was performed, and although static measurements did not exceed investigation levels, biased samples were taken at the elevated locations (06-PD1T-265-020 and 06-PD1T-265-021) as a conservative measure. None of the results exceeded the project release criteria as shown in Table 3-2 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). A summary of gamma scanning and static data is presented in Appendix B of the *Final Survey Unit 265 Project Report*.

Prior to remedial activities, four bounding samples (06-PD1T-265-022 to 06-PD1T-265-025) were collected in the vicinity of the original location of sample, 06-PD1T-265-017, and one result (06-PD1T-265-024) exceeded the project release criteria as shown in Table 3-3 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Four bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below the project investigation levels.

Prior to remedial activities, two bounding samples (06-PD1T-265-026 to 06-PD1T-265-027) were collected in the vicinity of the original location of samples 06-PD1T-265-017 and 06-PD1T-265-024, and all results were below project release criteria as shown in Table 3-4 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Two bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below the project investigation levels.

Prior to remedial activities, five additional bounding samples (06-PD1T-265-028 to 06-PD1T-265-032) were collected in the vicinity of the original location of sample 06-PD1T-265-024, and two results (06-PD1T-265-030 and 06-PD1T-265-032) exceeded the project release criteria as shown in Table 3-5 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Five bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below the project investigation levels.

Remedial activities were performed over an approximate 25-square-foot area that encompassed the area represented by samples 06-PD1T-265-017 and 06-PD1T-265-024. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. Seven post-remediation samples (06-PD1T-265-033 to 06-PD1T-265-039) were collected in the vicinity of the original location of samples 06-PD1T-265-017 and 06-PD1T-265-024, and two results (06-PD1T-265-033 and 06-PD1T-265-038) exceeded the project release criteria as shown in Table 3-6 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Seven post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 265 Project Report*).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the Trench SU 265 remediation excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. One area above the scan investigation level was identified; therefore, a follow-up survey was performed, and four biased samples were taken at the elevated locations (06-PD1T-265-040 to 06-PD1T-265-043). One of the results exceeded the project release criteria for ^{226}Ra as shown in Table 3-7 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). A summary of gamma scanning and static data is presented in Appendix B of the *Final Survey Unit 265 Project Report*.

Remedial activities were performed over an approximate 25-square-foot area that encompassed the area represented by sample 06-PD1T-265-043. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. Two post-remediation samples (06-PD1T-265-044 and 06-PD1T-265-045) were collected in the vicinity of the original location of sample 06-PD1T-265-043, and one result (06-PD1T-265-045) exceeded the project release criteria as shown in Table 3-8 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Two post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels.

Remedial activities were performed over an approximate 25-square-foot area that encompassed the area represented by sample 06-PD1T-265-043. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. Five post-remediation samples (06-PD1T-265-046 to 06-PD1T-265-050) were collected in the vicinity of the original location of sample 06-PD1T-265-043, and no results exceeded the project release criteria as shown in Table 3-9 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Five post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels.

Remedial activities were performed over an approximate 25-square-foot area that encompassed the area represented by sample 06-PD1T-265-045. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 1 cy of material that was transferred to the Navy's LLRW contractor for disposition. Three post-remediation samples (06-PD1T-265-051 to 06-PD1T-265-053) were collected in the vicinity of the original location of sample 06-PD1T-265-045, and no results exceeded the project release criteria as shown in Table 3-10 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Three post-remediation static gamma measurements were collected in the vicinity of the original sample location, and all results were below project investigation levels.

To address elevated results from 06-PD1T-265-030, -032, -033, and -038, additional material was excavated from the sides and bottom at the west end of Trench SU 265, resulting in the removal of approximately 90 cy of material. A second set of systematic samples (06-PD1T-265-101 through 06-PD1T-265-118) was taken after this excavation. The results for the project ROCs are summarized in Table 3-11 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 265 Project Report*. One of the systematic samples had reported ^{137}Cs levels greater than the MDA; however, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Fifteen of the 18 systematic samples had reported ^{226}Ra levels greater than the MDA, and two of the results exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra (06-PD1T-265-115 and 06-PD1T-265-117).

Prior to remedial activities, eight bounding samples (06-PD1T-265-119 to 06-PD1T-265-126) were collected in the vicinity of the original location of samples 06-PD1T-265-115 and 06-PD1T-265-117, and none of the results exceeded the project release criteria as shown in Table 3-12 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Eight bounding static gamma measurements were collected in the vicinity of the original sample location, and all results were below the project investigation levels.

Remedial activities were performed over an approximate 100-square-foot area that encompassed the area represented by samples 06-PD1T-265-115 and 06-PD1T-265-117. Soil was removed to a depth of 3 feet below the trench surface, resulting in the removal of approximately 11 cy of material that were transferred to the Navy's LLRW contractor for disposition. Eight post-remediation samples (06-PD1T-265-127 to 06-PD1T-265-134) were collected in the vicinity of the original location of samples 06-PD1T-265-115 and 06-PD1T-265-117, and no results exceeded the project release criteria as shown in Table 3-13 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Eight post-remediation static gamma measurements were collected in the vicinity of the original sample locations, and all results were below project investigation levels.

After remediation, a third set of systematic samples (06-PD1T-265-201 through 06-PD1T-265-218) was taken. The systematic sampling results for the project ROCs are summarized in Table 3-14 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A of the *Final Survey Unit 265 Project Report*. None of the systematic samples had reported ^{137}Cs levels greater than the MDA; therefore, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Fourteen of the 18 systematic samples had reported ^{226}Ra levels greater than the MDA, and one of the results exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra (06-PD1T-265-215).

Remedial activities were performed over an approximate 100-square-foot area that encompassed the area represented by samples 06-PD1T-265-215. Soil was removed to a depth of 3 foot below the trench surface, resulting in the removal of approximately 11 cy of material that were transferred to the Navy's LLRW contractor for disposition. Five post-remediation samples (06-PD1T-265-219 to 06-PD1T-265-223) were collected in the vicinity of the original location of sample 06-PD1T-265-215, and no results exceeded the project release criteria as shown in Table 3-15 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Five post-remediation static gamma measurements were collected in the vicinity of the original sample locations, and all results were below project investigation levels.

After remediation of 06-PD1T-265-215, a fourth set of systematic samples (06-PD1T-265-301 through 06-PD1T-265-318) was taken. The systematic sampling results for the project ROCs are summarized in Table 3-16 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H), and analytical data packages received from the on-site laboratory are presented in Appendix A. None of the systematic samples had reported ^{137}Cs levels greater than the MDA; therefore, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . Twelve of the 18 systematic samples had reported ^{226}Ra levels greater than the MDL, and one of the results exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra (06-PD1T-265-317).

Remedial activities were performed over an approximate 100-ft² area that encompassed the area represented by sample 06-PD1T-265-317. Soil was removed to a depth of 3 foot below the trench surface, resulting in the removal of approximately 11 cy of material that were transferred to the Navy's LLRW contractor for disposition. Six post-remediation samples (06-PD1T-265-325 to 06-PD1T-265-330) were collected in the vicinity of the original location of sample 06-PD1T-265-317, and one result exceeded the project release criteria as shown in Table 3-18 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Six post-remediation static gamma measurements were collected in the vicinity of the original sample locations, and all results were below project investigation levels.

Remedial activities were performed over an approximate 100- ft² area that encompassed the area represented by samples 06-PD1T-265-330 and 06-PD1T-265-317. Soil was removed to a depth of 3-foot below the trench surface, resulting in the removal of approximately 11 cy of material that were transferred to the Navy's LLRW contractor for disposition. One post-remediation sample (06-PD1T-265-331) was collected directly over the original location of samples 06-PD1T-265-330 and 06-PD1T-265-317, and none of the results exceeded the project release criteria as shown in Table 3-19 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). One post-remediation static gamma measurements were collected in the vicinity of the original sample locations, and all results were below project investigation levels (Appendix B).

In total, 141 soil samples (including bounding, post-remediation, and systematic samples) were collected and 138 cy of soil was remediated from Trench SU 265 during Parcel D-1 removal activities.

4.12.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 265 remained in place following the completion of the removal action.

4.12.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010).

The final set of final systematic samples consisted of samples 06-PD1T-265-301 through 06-PD1T-265-316 and 06-PD1T-265-318, collected on February 23, 2012, and sample 06-PD1T-265-331 as a post-remediation replacement sample for the original sample (06-PD1T-265-317) collected at that location, collected on April 20, 2012. The systematic sampling results for the project ROCs are summarized in Table 3-20 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H), and analytical data packages received from the

on-site laboratory are presented in Appendix A of the *Final Survey Unit 265 Project Report*. None of the systematic samples had reported ^{137}Cs levels greater than the MDL; therefore, none of the results exceeded the project release criterion of 0.113 pCi/g for ^{137}Cs . All of the 18 systematic samples had reported ^{226}Ra levels greater than the MDL; however, none of the results exceeded the project release criterion of 1.485 pCi/g for ^{226}Ra . Three out of the final 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . All results were below the MDL and therefore were below the project release criterion of 0.331 pCi/g for ^{90}Sr .

For the FSS, Trench SU 265 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 265 were 0.044 pCi/g for ^{137}Cs , 0.169 pCi/g for ^{90}Sr , and 0.650 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.042 pCi/g for ^{137}Cs , 0.202 pCi/g for ^{90}Sr , and 0.514 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at SU 265 resulted in a maximum above-background dose of 0.3 millirem per year (mrem/yr) and an ELCR of 4E-06. The model of the Trench SU 265 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling is required. The RESRAD (ANL, 2009) output files for the two SU 265 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 265 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 265 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of the

Trench SU 265 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H) was issued in October 2012.

4.12.4 Backfill Activities

ESUs 357, 358, 359, 394, and 589 were used to backfill Trench SU 265 with approximate volumes of 33 cy, 33 cy, 33cy, 120 cy, and 130 cy, respectively, used from each ESU. The analytical data from the screening activities at ESUs 357, 358, 359, 394, and 589 are presented in Tables 3-22 to 3-25 of the *Final Survey Unit 265 Project Report* (Shaw, 2012r; Appendix H). Final data for ESUs 357, 358, and 359 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). Final data for ESUs 394 and 589 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared for these ESUs are presented in Appendix C of the *Final Survey Unit 265 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 545 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 265. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.13 Trench Survey Unit 272

Trench SU 272 included trench segments 06-D24-00-3A and 06-D24-35-3A and a volume of imported fill material used for backfill. The location of Trench SU 272 is shown on Figure 5. Trench SU 272 is located along the northern boundary of WA 24 in Parcel D-1. The total excavated surface area was approximately 1,066 ft² (99 m²) with excavation depths varying between 4 to 5 feet bgs. The footprint of Trench SU 272 was 72 feet in length (22 meters). Approximately 110 cy of material were excavated from Trench SU 272.

4.13.1 Removal Action Activities

Excavation of Trench SU 272 commenced on October 11, 2010, in trench segment 06-24-00-3A, and removal of the pipe and soil completed on October 12, 2010. A total of 11 truckloads (approximately 110 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 72 linear feet of pipe was removed from Trench SU 272. Pipe was found in the trench between 3 to 4 feet bgs. Trench segments 06-D24-00-3A and 06-D24-35-3A contained 10-inch diameter VCP. All VCPs were disintegrated during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

Adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 272. Consequently, there are no sediment sample analytical results associated with Trench SU 272.

Trench segment 06-D24-00-3A was terminated at the Parcel D-1/Parcel C boundary. The pipe was plugged with nonshrink grout at the termination point. One manhole was found in association with Trench SU 272 (MH731) that was not included in the D-1 Sewer Design Plan (Shaw, 2010d). It was removed on October 12, 2010. Samples were not collected due to insufficient sediment volume. The manhole was surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

4.13.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 272 remained in place following the completion of the removal action.

4.13.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on December 3, 2010, and submitted to the HPNS on-site radiological laboratory for analysis. Upon review of the initial systematic sampling locations, it was determined that portions of the trench did not have adequate sampling coverage. On January 6, 2011, four additional samples were randomly collected from areas without sample coverage to complete the systematic data set.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 272 Project Report* (Shaw, 2012y; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 272 Project Report*. None of the 22 systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion ^{137}Cs (0.113 pCi/g). Twenty-one of the 22 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 22 systematic samples were analyzed for total Sr as surrogate for ^{90}Sr . One (06-PD1T-272-020) of the three samples had a detected total Sr result that exceeded the project ^{90}Sr release criterion of 0.331 pCi/g. Sample 06-PD1T-272-020 was then analyzed for isotopic ^{90}Sr . The ^{90}Sr result was 0.316 pCi/g, which is below the release criterion.

For the FSS, Trench SU 272 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were

applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 272 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench SU average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.250 pCi/g for ^{90}Sr , and 0.368 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 272 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 272 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 272 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 272 Project Report* (Shaw, 2012y; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 272 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Import backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 272 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 272 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 272 Project Report* (Shaw, 2012y; Appendix H) was issued in September 2012.

4.13.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 272 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 272. Approximately 110 cy of imported fill material from the Jericho import

fill source was used to backfill Trench SU 272. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.14 Trench Survey Unit 273

Trench SU 273 included trench segments 06-D24-35-1A and 06-D24-00-1A and a volume of imported fill material used for backfill. The location of Trench SU 273 is shown on Figure 5. Trench SU 273 is located along the northern boundary of WA 24 in Parcel D-1. The footprint of Trench Unit 273 was 73 feet in length (22 meters). The total excavated surface area was approximately 1,174 ft² (109 m²) with an excavation depth of approximately 5.6 feet bgs. Approximately 110 cy of material were excavated from Trench SU 273.

4.14.1 Removal Action Activities

Excavation of Trench SU 273 commenced on October 8, 2010, in trench segment 06-24-00-1A, and removal of the pipe and soil was completed on October 12, 2010. A total of 11 truckloads (approximately 110 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 73 linear feet of pipe was removed from Trench SU 273. Pipe was found in trench between 4 and 4.6 feet bgs. Trench segments 06-D24-00-1A and 06-D24-35-1A contained 10-inch diameter VCP. All VCPs were disintegrated during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 273. Consequently, there are no sediment sample analytical results associated with Trench SU 273.

Trench segment 06-D24-00-1A was terminated at the Parcel D-1/Parcel C boundary. The pipe was plugged with nonshrink grout at the termination point. One manhole was found in association with Trench SU 273 (MH728) that was not included in the D-1 Sewer Design Plan (Shaw, 2010d). MH728 was removed on October 11, 2010, and disposed of as LLRW by Navy's LLRW contractor. Samples were not collected due to insufficient sediment volume. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

4.14.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 273 remained in place following the completion of the removal action.

4.14.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 22 locations on December 2, 2010, and submitted to the HPNS on-site radiological laboratory for analysis. Upon review of the initial systematic sampling locations, it was determined that portions of the trench did not have adequate sampling coverage. On January 7, 2011, four additional samples were randomly collected from areas without sample coverage to complete the systematic data set.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 273 Project Report* (Shaw, 2012z; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 273 Project Report*. Two of the 22 systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Twenty of the 22 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 22 systematic samples were sent to the off-site laboratory for total Sr analysis as a surrogate for ^{90}Sr ; all total Sr results were reported below the MDL and were therefore below the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 273 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 273 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.211 pCi/g for ^{90}Sr , and 0.357 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill used for Trench SU 273 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 273 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 273 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 273 Project Report* (Shaw, 2012z; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 273 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Import backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill used for Trench SU 273 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 273 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 2E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 273 Project Report* (Shaw, 2012z; Appendix H) was issued in September 2012.

4.14.4 Backfill Activities

Excavated soil from the Trench SU 273 trench segments was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used as backfill. Approximately 110 cy of imported fill material from the Jericho import fill source was used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.15 Trench Survey Unit 274

Trench SU 274 included trench segments 06-D24-35-2F, -2G, -2I -4A, -4D, -4E, and -4F; 06-D24-00-4A, -4B, and -4C and a volume of excavated and imported fill material used for backfill. The location of Trench SU 274 is shown on Figure 5 Trench SU 274 is located along the eastern boundary of WA 24 in Parcel D-1. The trench segments are adjacent to Buildings 274, 368, and 369. The total excavated surface area was approximately 9,503 ft² (883 m²) with excavation depths varying between 3 and 9 feet bgs. Approximately 1,130 cy of soil were excavated from Trench SU 274.

4.15.1 Removal Action Activities

Excavation of Trench SU 274 commenced on October 12, 2010, in trench segment 06-D24-35-4F, and removal of the pipe and soil was completed on October 18, 2011. A total of

113 truckloads (approximately 1130 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 615 linear feet of pipe was removed from Trench SU 274. Pipe was found in the trench between 2 and 8 feet bgs. The SD pipe in trench segments 06-D24-35-2F and 06-D24-35-2G contained 24-inch and 6-inch diameter VCP, respectively. The SD pipe in trench segment 06-D24-35-2I contained 4-inch diameter CIP. The SS pipe in trench segments 06-D24-00-4A, -4B, -4C, 06-D24-35-4A, -4D, -4E, and -4F contained 4-inch to 6-inch VCP. All removed metal pipes were placed in LLRW bins for disposal by the Navy's LLRW contractor. The majority of VCPs disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 for processing along with excavated soil.

An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 274. Consequently, there are no sediment sample analytical results associated with Trench SU 274.

During the excavation of trench segment 06-D24-35-4E, an additional 29 feet of SS was found that was not previously identified in the D-1 Sewer Design Plan (Shaw, 2010d). During excavation of trench segment 06-D24-00-4A, a previously unidentified manhole was found and designated as MH733. Trench segment 06-D24-35-2H was not found within the footprint of Trench SU 274. Further discussion on this trench segment is included in Section 4.7 of the *Final Survey Unit 274 Project Report* (Shaw, 2012aa; Appendix H).

Trench segment 06-D24-35-4F was terminated at the Parcel D-1/Parcel G boundary. Three manholes were associated with Trench SU 274 (MH702, MH703, and MH733). MH703, MH733, and MH702 were removed on October 13, 15, and 18, 2010, respectively. Samples were not collected due to insufficient sediment volume. All three manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor.

4.15.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 274 remained in place following the completion of the removal action.

4.15.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 36 locations. The first set of 18 systematic samples was collected on December 9, 2010, and the second set was collected on January 6 to 7, 2011. Both sets were submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 274 Project Report* (Shaw, 2012aa; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 274 Project Report*. None of the 36 systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Twenty-nine of the 36 systematic samples reported ^{226}Ra levels greater than the MDL; however, none of the results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Four of the 36 systematic samples were sent to the off-site laboratory for total Sr analysis. One result for total Sr was reported above the MDL; however, none of the results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 274 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 274 were 0.041 pCi/g for ^{137}Cs , 0.111 pCi/g for ^{90}Sr , and 0.671 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.039 pCi/g for ^{137}Cs , 0.228 pCi/g for ^{90}Sr , and 0.382 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of Trench SU 274 resulted in a maximum above-background dose of 0.9 mrem/yr and an ELCR of 1E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 274 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 274 Project Report* (Shaw, 2012aa; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 274 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported backfill material met the project release criteria.

- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of Trench SU 274 resulted in a maximum above-background dose of 0.9 mrem/yr and an ELCR of 1E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 274 Project Report* (Shaw, 2012aa; Appendix H) was issued in September 2012.

4.15.4 Backfill Activities

ESUs 345 (220 cy) and 350 (130 cy) were used to backfill Trench SU 274. Final data from ESUs 345 and 350 were provided by the on-site laboratory, per the SUPRA Revision 3 (TtEC, 2011a). The analytical data from the screening activities at ESUs 345 and 350 are presented in Tables 3-3 and 3-4 of the *Final Survey Unit 274 Project Report* (Shaw, 2012aa; Appendix H), respectively. The analytical data packages prepared by the Basewide Radiological Contractor for these ESUs are presented in Appendix C of the *Final Survey Unit 274 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 780 cy of imported fill material from the Jericho import fill source was also used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.16 Trench Survey Unit 277

Trench SU 277 included trench segments 06-D24-00-9A, 06-D24-32-9A, 06-D24-32-9B, and 06-D28-32-1D and Navy-approved import fill material used for backfill. The location of Trench SU 277 is shown on Figure 5. Trench SU 277 consists of one excavation located on the eastern end of WA 24 near the base of GMP, with one trench segment extending onto GMP. The footprint of Trench SU 277 was nonlinear and had a total excavated surface area of approximately 3,505 ft² (326 m²) and excavation depths varying between 3 and 5 feet bgs. Approximately 320 cy of soil were excavated from Trench SU 277.

4.16.1 Removal Action Activities

Excavation of Trench SU 277 commenced on March 25, 2011, in trench segment 06-24-00-9A, and removal of the pipe and soil was completed on March 29, 2011. A total of 32 truckloads (approximately 320 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 232 linear feet of pipe was removed from Trench SU 277. Pipe was found in the trench between 2 and 4 feet bgs. Trench segments 06-D24-00-9A and 06-D24-32-9A contained 8-inch diameter VCP and trench segments 06-D24-32-9B and 06-D24-32-1D contained 10-inch diameter VCP. All VCPs were disintegrated during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 277. Consequently, there are no sediment sample analytical results associated with Trench SU 277.

Trench segment 06-D28-32-1D was terminated at the intersection to a 42-inch RCP connecting MH749 to the outfall at Berth 15. The pipe was plugged with nonshrink grout at the termination point. Two manholes were found in association with Trench SU 277 (MH709 and MH711). MH711 was removed on March 25, 2011, and MH709 was removed on March 28, 2011. Samples were not collected due to insufficient sediment volume. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

4.16.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 277 remained in place following the completion of the removal action.

4.16.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 14, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized below in Table 3-1 of the *Final Survey Unit 277 Project Report* (Shaw, 2012ad; Appendix H), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 277 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, this result did not exceed the project release criterion of 0.113 picocuries per gram (pCi/g) for ^{137}Cs . All of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g). Two of the 18 systematic samples were sent off site for total Sr as a surrogate for ^{90}Sr . Both samples reported below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 277 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with

the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 277 were 0.047 pCi/g for ^{137}Cs , 0.139 pCi/g for ^{90}Sr , and 0.563 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.194 pCi/g for ^{90}Sr , and 0.625 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill used for Trench SU 277 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 277 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 277 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 277 Project Report* (Shaw, 2012ad; Appendix H).

No further action is required, and unrestricted release is recommended for Trench SU 277 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Import backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill used for Trench SU 277 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 277 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 277 Project Report* (Shaw, 2012ad; Appendix H) was issued in September 2012.

4.16.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 277 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used as backfill. Approximately 320 cy of material from the Jericho import fill source was used to

backfill Trench SU 277. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

4.17 Former Building 313, 313A, and 322 Sites

The following sections summarize the radiological work performed for the Former Building 313, 313A, and 322 Sites, provide an abbreviated history, identify the FSS results, and discuss regulatory concurrence for unrestricted radiological release of the property. The *Final, Final Status Survey Report, Former Building 313, 313A, and 322 Sites, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013b; Appendix H) details the radiological survey activities. The location of the Former Building 313, 313A, and 322 Sites is shown on Figure 5.

4.17.1 Description and Background

The Former Building 313, 313A, and 322 Sites are located northwest of Berth 14 and Building 274, in WA 24 (Figure 2). The three buildings were demolished prior to August 2004, and only compacted soil, asphalt, and underground sewer laterals originating from Buildings 313, 313A, and 322 remain. The Former Building 313, 313A, and 322 footprints, the surrounding area, and a buffer zone were evaluated for unrestricted release. Release of SD and SSs associated with these former building locations was addressed in the *Final Survey Unit 254 Project Report* (Shaw, 2012g; Appendix H).

The buildings were once used by the NRDL Instrumentation Laboratory, and as stockroom and storage areas. Radiological surveys were performed in 1955 and 2002 and ^{137}Cs was found above action levels in 2002 (NAVSEA, 2004). As identified in the *Final Revision 1, Final Task-Specific Plan, Former Building Sites 313, 313A, and 322, Characterization Survey and Remedial Action, Hunters Point Shipyard, San Francisco, California* the ROCs at the Former Building 313, 313A, and 322 Sites are ^{137}Cs , ^{239}Pu , ^{226}Ra , ^{90}Sr , and ^{232}Th (Shaw, 2011a).

4.17.2 Final Status Survey Summary

The Former Building 313, 313A, and 322 Sites survey activities commenced in the fall of 2010. The selected background soil reference area for Parcel D-1, including the Former Building 313, 313A, and 322 Sites, was located adjacent to Building 526. This area was determined to be nonimpacted from Navy operations (NAVSEA, 2004). For consistency with basewide practices, the Building 116 reference area in Parcel B was used for collection of background gamma scanning and static measurement data.

The NRC release limit for unrestricted use was applied in assessing the results of the surveys of the Former Building 313, 313A, and 322 Sites. Results were also analyzed using the more conservative EPA Office of Solid Waste and Emergency Response Directive 9200.1-34b to determine if the residual radioactivity, distinguishable from background radiation, resulted in a TEDE to an average member of the critical (screening) group exceeding 15 mrem/yr or an ELCR

of no more than 3E-04, and if the residual radioactivity had been reduced to levels that were ALARA. This radiological release process ensures that residual radioactivity will not result in individuals being exposed to unacceptable levels of radiation or radioactive materials.

Prior to the start of field activities, the Former Building 313, 313A, and 322 Sites area was included in the RCA boundary established for Parcel D-1. A site walk was conducted to identify any potential safety hazards.

Three SU were initially identified in the *Final Revision 1, Final Task-Specific Plan, Former Building Sites 313, 313A, and 322, Characterization Survey and Remedial Action, Hunters Point Shipyard, San Francisco, California* (Shaw, 2011a). These consisted of a Class 1 SU, comprised of the combined Building 313 and 313A footprints (D24-SU1); a Class 1 SU, comprised of the Building 322 footprint (D24-SU2); and Class 2 SU, consisting of a 15-foot buffer around the Class 1 SUs (D24-SU3). Initial sampling identified the presence of elevated ROCs in both the Class 1 and Class 2 SU. Therefore, the original Class 2 buffer was re-classified as a Class 1 SU, and a new Class 2 buffer (D24-SU4) was added.

Gamma walkover surveys were performed in accordance with *E&I Standard Operating Procedures*, No. T-RA-009, “Radiation Exposure Rate Monitoring” (Shaw E&I, 2014a). GPS equipment was used to provide an electronic record of measurements. The primary elements of each individual data record included northing and easting (both correction for reference satellite configuration and atmospheric distortion), date and time of measurement, and counts per minute (cpm) of the gamma detection instrument. The data were evaluated by a radiological professional for quality control, and then reviewed for count rates (cpm) that exceeded the investigation level threshold of the reference area mean plus 3σ . Elevated scan measurements were evaluated by conducting follow-up scans and static measurements biased to the highest scanning locations. Locations that exceeded the static measurement investigation levels were subject to biased soil sampling.

Gamma scanning was also performed to monitor all remediation activities, and scanning spot-checks were performed following remediation activities to verify that newly exposed surfaces did not exceed investigation levels.

Soil samples were collected from systematic locations, and six locations originally required remediation based on the soil sample analytical results for ^{137}Cs and ^{226}Ra that exceeded the release criteria. Approximately 24 cy of soil was remediated from Area 1, 23 cy from Area 2, 72 cy from Area 3, 8 cy from Area 4, 39 cy from Area 5, and 9 cy from Area 6. Each area is defined as shown on Figure C-1 of the *Final, Final Status Survey Report, Former Building 313, 313A, and 322 Sites, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013b; Appendix H). Following remediation, a second set of systematic samples

was taken in each of the SUs, and D24-SU4 required remediation based on soil sample analytical results for ^{137}Cs that exceeded the release criteria. Approximately 6.3 cy of soil was remediated from D24-SU4. Following remediation, a third set of systematic samples was taken in D24-SU4, and remediation was required based on soil sample analytical results for ^{137}Cs that exceeded the release criteria. Approximately 14.8 cy of soil was remediated from D24-SU4. Following remediation, a fourth set of systematic samples was taken in D24-SU4 and analyzed. No activity above the release criteria was identified in any of the systematic soil samples for any ROC.

Modeling for the Former Building 313, 313A, and 322 Sites was performed to calculate the residual dose to the critical group. The model of D24-SU1 resulted in a maximum above-background dose of 0.3872 mrem/yr and an ELCR of 5.191E-06. The model of D24-SU2 resulted in a maximum above-background dose of 0.1346 mrem/yr and an ELCR of 1.959E-06. The model of D24-SU3 resulted in a maximum above-background dose of 0.6565 mrem/yr and an ELCR of 8.605E-06. The model of D24-SU4 resulted in a maximum above-background dose of 0.6468 mrem/yr and an ELCR of 8.455E-06. These results meet the project dose and risk criteria of a 15 mrem/yr limit and an ELCR of less than 3E-04.

No evidence of residual radioactivity above the release criteria was found to be present at the Former Building 313, 313A, and 322 Sites. Based on the survey results and modeling efforts, the Former Building 313, 313A, and 322 Sites were recommended for unrestricted radiological release (Appendix H).

4.17.3 Regulatory Concurrence

The *Final, Final Status Survey Report, Former Building 313, 313A, and 322 Sites, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013b; Appendix H) was submitted to the Navy and the regulatory agencies in March 2013. Concurrence by the regulatory agencies for radiological release for unrestricted use of the Former Building 313, 313A, and 322 Sites was received in August 2013.

4.18 Building 274

The following sections summarize the radiological work performed for Building 274, provide an abbreviated history, identify the FSS results, and discuss regulatory concurrence for unrestricted radiological release of the property. The *Final, Final Status Survey Report, Parcel D-1, Building 274, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012ak; Appendix H) and details the radiological survey activities. The location of the Building 274 is shown on Figure 2.

4.18.1 Description and Background

Building 274 is located on 3rd Avenue between E Street and Morrell Street (Figure 2). Building 274 is a shop building with a shallow gable roof and corrugated metal siding, measuring 100 feet by 40 feet. Interior rooms within Building 274 (prior to removal in

preparation of the final survey) were built with traditional wood and sheetrock materials. Interior rooms consisted of nine enclosed rooms, two toilet facilities, and a large “open air” WA. The floor of Building 274 consists of a concrete pad.

Building 274 is located in IR 35, and is currently vacant and unoccupied. The planned future use of the area identified in the *Hunters Point Shipyard Reuse Plan* (San Francisco Redevelopment Agency, 1997) is as an “industrial use” area.

Building 274 was previously used for decontamination training and office space (NAVSEA, 2004). As identified in the HRA (NAVSEA, 2004), the ROCs for Building 274 are ^{137}Cs , ^{226}Ra , and ^{90}Sr .

4.18.2 Final Status Survey Summary

The Building 274 survey activities were initiated in the fall of 2010. Building 368 was used as a reference area for alpha, beta, and gamma surveys of sheet metal, and alpha and beta surveys of concrete. The Building 270 concrete pad was used to evaluate concrete gamma measurements. Building 368 is located immediately northeast of Building 274 and is constructed of similar materials. The Building 270 concrete pad exhibited similar ambient gamma levels to those found in Building 274.

For alpha and beta surveys, the investigation levels were 100 dpm/100 cm² and 1,000 dpm/100 cm², respectively. Loose surface contamination investigations to determine the fraction of removable activity present relative to the total activity were set at 20 percent of the values for total activity and were different than other investigation levels due to the lower release criteria for removable surface contamination. For gamma surveys, the investigation level was established as the reference area mean plus 3 sigma (σ), where σ is the standard deviation of the gamma readings in the reference area.

Prior to surveys, interior walls and structures within Building 274 were removed to allow access to the concrete slab and outer metal walls. Interior wall surfaces (transite wall panels) determined to be ACMs by pre-existing surveys, were removed, packaged, and disposed of as asbestos waste following pre and post-removal radiological surveys. Concrete interior partition wall footers were removed to facilitate scanning measurements using the floor monitor. All removed materials were surveyed prior to release and were found to be free of radioactive contamination.

Drainage and ventilation systems were identified for potential survey during the site preparation phase. Both static gamma measurements and smear samples were collected from locations inside and outside each drain (i.e., two measurements per drain). Ventilation systems were dismantled during the site preparation phase. Components from these systems were subject to 100 percent

alpha/beta and gamma scanning; alpha, beta, and gamma static measurements; and smear samples.

Building 274 was divided into six Class 1 SU and three Class 2 SU. Alpha and beta scan readings for these SU did not indicate the need for additional biased measurements. No systematic alpha or beta static measurements collected in the SU exceeded the release criteria. Several of the SU exhibited elevated gamma radiation levels; however, because no distinct hotspots were detected during the surveys and exposure rate levels were consistent throughout the building, these elevated measurements were concluded to be within natural variability of background. In addition, none of the swipe measurements indicated loose surface activity greater than the release criteria, and all of the swipe data were less than 20 percent of the total net residual activity identified within each SU.

Modeling for Building 274 was performed to calculate the residual dose to the critical group. The highest calculated dose and risk are associated with SU 7, with a dose of 0.081 mrem/yr and ELCR of 5.48E-08. The results of the modeling efforts were provided in Appendix E of the *Final, Final Status Survey Report, Parcel D-1, Building 274, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012ak; Appendix H).

The survey data document the final radiological condition of Building 274 and are of sufficient type and quality to support a decision to release Building 274 for unrestricted use. No further action is required.

4.18.3 Regulatory Concurrence

The *Final, Final Status Survey Report, Parcel D-1, Building 274, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012ak; Appendix H) was submitted to the Navy and the regulatory agencies in October 2012. Concurrence by the regulatory agencies for radiological release for unrestricted use of the Building 274 site was received in March 2013.

5.0 Work Area 25

WA 25 is located in the southern of Parcel D-1, to the south-southwest of the GMP (Figure 2). It is bounded on the east/southeast by Parcel F and the Bay, on the northwest by the Basewide Radiological Contractor's RSY2, and on the west by Parcel E. The radiological work activities performed for WA 25 included Trench SU 282. The following sections summarize the work activities completed in WA 25 to support the recommended radiological release for unrestricted use of the Parcel D-1 property.

5.1 Trench Survey Unit 283

Trench SU 283 included trench segments 06-D25-00-1A, 06-D25-00-2A, 06-D25-00-2B, 06-D25-00-2C, and 06-D25-00-3A and volumes of screened excavated soil and import fill material used for backfill. Trench SU 283 is located in the northeastern portion of WA 25 as shown on Figure 5. The total excavated surface area was approximately 5,576 ft² (520 m²) with excavation depths varying between 3 and 5 feet bgs. Approximately 360 cy of soil were excavated from Trench SU 283.

5.1.1 Removal Action Activities

Excavation of Trench SU 283 commenced on October 31, 2011, in trench segment 06-D25-00-3A, and removal of the pipe and soil was completed on November 4, 2011. A total of 36 truckloads (approximately 360 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 493 linear feet of pipe was removed from SU 283 during excavation activities. Pipe was found in trench between 2 to 4 feet bgs. Trench segments 06-D25-00-1A, -2A, -2B, -2C, and -3A contained 6-inch to 10-inch diameter VCP. All VCPs were crushed during excavation and were sent to the Basewide Radiological Contractor's RSY2 along with excavated soil.

Trench segments 06-D25-00-1A and -2C were terminated at the outfalls along Berth No. 22 and Berth No. 22, respectively. In addition, the other end of trench segment 06-D25-00-1A was terminated at Parcel D-1/the Basewide Radiological Contractor's RSY2 boundary. Nonshrink grout was used to plug the pipe at termination point.

The pier wall/pier cell where trench segment 06-D25-00-3A was located was badly damaged due to wave action and erosion in general over time. Approximately half of the pipe section indicated in the D-1 Sewer Design Plan (Shaw, 2010d) was washed away or lying in shallow water. Using an excavator with thumb attachment, Shaw extracted the majority of the pipes that were under water and excavated the remaining intact pipes as part of Trench SU 283.

Five manholes were associated with Trench SU 283 (MH782, MH783, MH784, MH785, and MH787). MH782 and MH785 were removed on November 2, 2011, and MH783, MH784, and MH787 were removed on November 3, 2011. Sufficient sediment for sample collection and analysis was available from MH785 and MH787. The analytical results for the sediment samples collected from MH785 did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample collected from MH787 identified ^{137}Cs activity above the release criterion at 0.4798 pCi/g. Due to the presence of ^{137}Cs activity above the release criterion, the sediment sample with identified ^{137}Cs activity was sent to the off-site laboratory for total Sr analysis. The off-site analytical result for the elevated sample did not indicate the presence of Sr activity above the release criterion. The sediment sample analytical reports are provided in Appendix M. MH787 was disposed as LLRW by the Navy's LLRW contractor. The remaining four manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

5.1.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 283 remained in place following the completion of the removal action.

5.1.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on November 11, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 283 Project Report* (Shaw, 2012a; Appendix I), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 283 Project Report*. None of the systematic samples had reported ^{137}Cs levels greater than the MDL; therefore, none of the results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples had reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . All samples reported as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 283 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for

material used as backfill in Trench SU 283 were 0.042 pCi/g for ^{137}Cs , 0.145 pCi/g for ^{90}Sr , and 0.436 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.162 pCi/g for ^{90}Sr , and 0.407 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 283 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. The model of Trench SU 283 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 283 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 283 Project Report* (Shaw, 2012aj; Appendix I).

No further action is required, and unrestricted release is recommended for Trench SU 283 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported fill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 283 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. The model of the Trench SU 283 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 283 Project Report* (Shaw, 2012aj; Appendix I) was issued in September 2012.

5.1.4 Backfill Activities

Excavated soil from ESUs 619, 622, and 623 were used to backfill Trench SU 283. Samples from ESUs 619 and 623 were collected and labeled according to each individual pile, but were combined for evaluation of release and dose modeling. The analytical data from the screening activities at ESUs 619 and 623 are presented in Table 3-3, and the data from ESU 622 are

presented in Table 3-4 of the *Final Survey Unit 283 Project Report* (Shaw, 2012aj; Appendix I). Final data from the ESUs were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared by TestAmerica St. Louis for ESUs 619, 622, and 623 are presented in Appendix C of the *Final Survey Unit 283 Project Report*.

Approximately 45 cy of imported fill material from the Jericho import fill source were also used to backfill Trench SU 283. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

6.0 *Work Area 28*

WA 28 is located in the middle of Parcel D-1, at the northwestern end of GMP (Figure 2). It is bounded on the south and east by Parcel F and the Bay, on the west by the Basewide Radiological Contractor's RSY2, and on the north by WA 24. The radiological work activities performed for WA 28 included Trench SU 258, 262, 270, 271, 278, 279, 280, 281, 282, and Building 383. The following sections summarize the work activities completed in WA 28 to support the recommended radiological release for unrestricted use of the Parcel D-1 property.

6.1 *Trench Survey Unit 258*

Trench SU 258 included two trench segments, 06-D29-00-15A and 06-D28-32-4A on GMP and the volume of excavated and imported fill material used for backfill. The location of Trench SU 258 is shown on Figure 5. The total excavated surface area was approximately 1,635 ft² (152 m²) with excavation depths between 4 and 6 feet bgs. Approximately 180 cy of material were excavated from Trench SU 258.

6.1.1 *Removal Action Activities*

Excavation of Trench SU 258 commenced on February 8, 2011, in trench segment 06-D29-00-15A, and removal of the pipe and soil was completed on February 28, 2011. A total of 18 truckloads (approximately 180 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 107 linear feet of pipe was removed from Trench SU 258 during excavation activities. Trench SU 258 pipe was found in trenches between 3 and 5 feet bgs. Trench segments 06-D29-00-15A and 06-D28-32-4A both contained 3-inch diameter steel pipe. All pipe sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 258. Consequently, there are no sediment sample analytical results associated with Trench SU 258. Following radiological screening, the pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor. No manhole was removed from Trench SU 258.

6.1.2 *Piping Remaining in Place*

No known SD or SS piping associated with Trench SU 258 remained in place following the completion of the removal action.

6.1.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on March 23, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 258 Project Report* (Shaw, 2012k; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 258 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . One of the two samples analyzed for total Sr (06-PD1T-258-015) reported a total Sr result that exceeded the project ^{90}Sr release criterion of 0.331 pCi/g. Sample 06-PD1T-258-015 was then analyzed for isotopic ^{90}Sr , and the result was reported below the MDL; therefore, the result did not exceed the project release criterion of 0.331 pCi/g.

For the FSS, Trench SU 258 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 258 were 0.042 pCi/g for ^{137}Cs , 0.064 pCi/g for ^{90}Sr , and 0.407 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.229 pCi/g for ^{90}Sr , and 0.478 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 258 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. The model of Trench SU 258 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 258 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 258 Project Report* (Shaw, 2012k; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 258 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for SU 258 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. The model of Trench SU 258 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 258 Project Report* (Shaw, 2012k; Appendix J) was issued in September 2012.

6.1.4 Backfill Activities

Soil from ESU 412 was used in part to backfill trench segment 06-D29-00-15A in Trench SU 258. Final data from ESU 412 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at ESU 412 is summarized in Table 3-2 of the *Final Survey Unit 258 Project Report* (Shaw, 2012k; Appendix J). The analytical data packages prepared by TestAmerica St. Louis for ESU 412 are presented in Appendix C of the *Final Survey Unit 258 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 90 cy of imported fill material from the Jericho import fill source was also used to backfill trench segment 06-D28-32-4A in Trench SU 258. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

6.2 Trench Survey Unit 262

Trench SU 262 included trench segments 06-D28-32-1F, -1G, -1H, -1I, -1L, and -1M and a volume of imported fill material used for backfill. The location of Trench SU 262 is shown on Figure 5. Trench SU 262 is located along the GMP and is bordered by Trench SU 278 to the west, 276 to the south, and 268 to the east. The total surface area is approximately 13,219 ft²

(1,228 m²) of actual excavated trench, in varying depths between 3 and 8 feet bgs. Approximately 1,260 cy of soil were excavated from Trench SU 262.

6.2.1 Removal Action Activities

Excavation of Trench SU 262 commenced on December 2, 2010, in trench segment 06-D28-32-1F, and removal of the pipe and soil was completed on March 21, 2011. A total of 126 truckloads (approximately 1,260 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 767 linear feet of pipe was removed from Trench SU 262 during excavation activities. Pipe was found in trench between 2 to 7 feet bgs. Trench segments 06-D28-32-1L and -1M contained 27-inch and 15-inch diameter RCPs, respectively. Trench segments 06-D28-32-1G, -1H, and -1I contained 12-inch diameter RCPs. Trench segment 02-D28-32-1F was shown on the D-1 Sewer Design Plan (Shaw, 2010d) but was not found on site. The majority of the pipes was disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 for processing along with the excavated soil. The remaining pipe sections were excavated out and placed on plastic sheeting pending further investigation. The excavated pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Four manholes (MH750, MH752, MH756, and 781) were removed from Trench SU 262 (Table 9). MH781, MH750, and MH752 were removed on December 2, 3, and 7, 2010, respectively. MH756 was removed on January 31, 2011. Insufficient sediment was found in the manholes for sample collection and analysis. All four manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.2.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 262 remained in place following the completion of the removal action.

6.2.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 24 locations (18 samples collected on February 28, 2011, and additional six samples collected on September 29, 2011) and submitted to the HPNS on-site radiological laboratory for analysis. Per the requirements of the Section 17.4 of the SAP (Appendix B of the D-1 Radiological Work Plan [Shaw, 2010b]), 18 systematic samples were required. However, the SU size exceeded the 1,000-m² surface area limit from the Project Work Plan and therefore, additional samples were taken to provide adequate coverage of the SU. The number of samples needed per MARSSIM (DoD et al., 2000) was not recalculated as the SU size did not exceed the Class 1 recommended

SU size of 2,000 m². These samples were taken as a conservative measure to ensure that no large area within the trench would exceed the intended area coverage for a 1,000-m² surface area. The additional samples were placed manually within sampling voids in the SU, as the additional sample locations generated by VSP ended up clustered together, presumably due to the dimensions of the trench. The manual placement resulted in a better distribution of the additional samples throughout the trench.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 262 Project Report* (Shaw, 2012o; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 262 Project Report*. None of the 24 systematic samples reported ¹³⁷Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ¹³⁷Cs (0.113 pCi/g). All 24 systematic samples reported ²²⁶Ra levels greater than the MDL; however, no results exceeded the project release criterion for ²²⁶Ra (1.485 pCi/g).

Four out of 24 systematic samples were analyzed off site for total Sr as a surrogate for strontium-90 (⁹⁰Sr). All results for total Sr were reported as below the MDL, and were therefore below the project release criterion for ⁹⁰Sr (0.331 pCi/g).

For the FSS, Trench SU 262 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 262 were 0.040 pCi/g for ¹³⁷Cs, 0.000 pCi/g for ⁹⁰Sr, and 0.396 pCi/g for ²²⁶Ra. The trench unit average net residual radioactivity concentrations were 0.039 pCi/g for ¹³⁷Cs, 0.189 pCi/g for ⁹⁰Sr, and 0.478 pCi/g for ²²⁶Ra. The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 262 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 262 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 262 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 262 Project Report* (Shaw, 2012o; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 262 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 262 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 262 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 262 Project Report* (Shaw, 2012o; Appendix J) was issued in October 2012.

6.2.4 Backfill Activities

All soil excavated from Trench SU 262 was disposed according to requirements for chemical contamination. Only imported fill material from the Jericho source was used to backfill Trench SU 262. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were laid on top of Trench SU 262 footprint as part of GMP site restoration.

6.3 Trench Survey Unit 270

Trench SU 270 included trench segment 06-D28-32-2E and a volume of Navy-approved import fill material used for backfill. The location of Trench SU 270 is shown on Figure 5. Trench SU 270 is located in WA 28 on GMP. The total excavated surface area is approximately 4,232 ft² (393 m²) with excavation depths varying between 5 and 6 feet bgs. Approximately 320 cy of soil were excavated from Trench SU 270.

6.3.1 Removal Action Activities

Excavation of Trench SU 270 commenced on September 19, 2011, in trench segment 06-D28-32-2E, and removal of the pipe and soil was completed on the same day. A total

of 32 truckloads (approximately 320 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 and RSY3 for processing.

Approximately 235 linear feet of pipe was removed from Trench SU 270. Pipe was found in trench between 4 and 5 feet bgs. Trench segment 06-D28-32-2E contained 8-inch diameter VCP. The majority of the pipes was disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 and RSY3 for processing along with the excavated soil. The remaining pipe sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 270. Consequently, there are no sediment sample analytical results associated with Trench SU 270. The pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

One manhole (MH747) was removed from Trench SU 270 on September 19, 2011. Insufficient sediment was found for sample collection and analysis. The manhole was surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.3.2 *Piping Remaining in Place*

No known SD or SS piping associated with Trench SU 270 remained in place following the completion of the removal action.

6.3.3 *Final Status Survey Summary*

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected on September 27, 2011, from 18 locations and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 270 Project Report* (Shaw, 2012w; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 270 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MD; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . Both samples were reported as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 270 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 270 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.189 pCi/g for ^{90}Sr , and 0.539 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 270 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 270 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 270 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 270 Project Report* (Shaw, 2012w; Appendix J).

No further action is required, and unrestricted release is recommended for SU 270 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 270 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 270 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 270 Project Report* (Shaw, 2012w; Appendix J) was issued in October 2012.

6.3.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 270 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 270. Approximately 320 cy of imported fill material from the Jericho import fill source were used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 270 footprint as part of GMP site restoration.

6.4 Trench Survey Unit 271

Trench SU 271 included trench segments 06-D28-32-1E, 06-D28-32-2A, 06-D28-32-2B, 06-D28-32-2C, and 06-D28-32-2D and a volume of imported fill material used for backfill. The location of Trench SU 271 is shown on Figure 5. Trench SU 271 is located in WA 28 on GMP. The total excavated surface area was approximately 7,136 ft² (663 m²) with excavation depths varying 3.5 and 8.5 feet bgs. Approximately 770 cy of soil were excavated from Trench SU 271.

6.4.1 Removal Action Activities

Excavation of Trench SU 271 commenced on September 19, 2011, in trench segment 06-D28-32-1E, and removal of the pipe and soil was completed on the September 26, 2011. A total of 77 truckloads (approximately 770 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY3 for processing.

Approximately 405 linear feet of pipe was removed from Trench SU 271. Pipe was found in the trench between 2.5 to 7.5 feet bgs. All trench segments contained 8-inch diameter VCP. The majority of the pipes was disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY3 for processing along with the excavated soil. The remaining pipe sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 271. Consequently, there are no sediment sample analytical results associated with Trench SU 271. The pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Two manholes (MH754 and MH755) were removed from Trench SU 271 on September 26, 2011. Insufficient sediment was found for sample collection and analysis. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.4.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 271 remained in place following the completion of the removal action.

6.4.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on October 18, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 271 Project Report* (Shaw, 2012x; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 271 Project Report*. One of the systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Four of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . One of the four samples reported total Sr levels greater than the MDL; however, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 271 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 271 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.046 pCi/g for ^{137}Cs , 0.142 pCi/g for ^{90}Sr , and 0.492 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 271 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 271 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 6E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 271 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 271 Project Report* (Shaw, 2012x; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 271 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Imported backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 271 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 271 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 6E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04. All analytical results from final systematic samples collected from the trench were below project release criteria.

The *Final Survey Unit 271 Project Report* (Shaw, 2012x; Appendix J) was issued in October 2012.

6.4.4 Backfill Activities

Excavated soil from the trench segments was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 271. Approximately 770 cy of imported fill material from the Jericho import fill source were used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 271 footprint as part of GMP site restoration.

6.5 Trench Survey Unit 276

Trench SU 276 included trench segments 06-D28-32-2E, -2F, -2G, -1J, -1N, -1O, -1P, -1Q, as well as 06-D29-00-2B and a volume of excavated and imported fill material used for backfill. The location of Trench SU 276 is shown on Figure 5. Trench SU 276 consisted of three discrete excavations located on the eastern end of WA 28 of GMP as well as one dig site located on the western end of WA 29 of GMP. The footprint of Trench SU 276 was nonlinear and had a total excavated surface area of approximately 5,029 ft² (467 m²) with excavation depths varying between 2 and 5.2 feet bgs. Approximately 1,020 cy of material were excavated from Trench SU 276.

6.5.1 Removal Action Activities

Excavation of Trench SU 276 commenced on March 16, 2011, in trench segment 06-D28-32-1N, and removal of the pipe and soil was completed on the April 1, 2011. A total of 102 truckloads (approximately 1,020 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 871 linear feet of pipe was removed from Trench SU 276 during excavation activities. Pipe was found in trench between 1 to 4.2 feet bgs. SS trench segment 06-D28-32-2E contained 8-inch diameter VCP. SS trench segments 06-D28-32-2F and -2G in contained 5-inch diameter metal pipe. SD trench segment 06-D28-32-1J contained 15-inch diameter RCP. SD trench segments 06-D28-00-2B, 06-D28-32-1N, -1O, -1P, and -1Q contained 8-inch to 10-inch diameter VCP. The majority of the concrete and VCPs was disintegrated upon removal and were transferred to the Basewide Radiological Contractor's RSY3 for processing along with the excavated soil. The remaining concrete pipe sections and metal pipes were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 276. Consequently, there are no sediment sample analytical results associated with Trench SU 276. The pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Six manholes (MH758, MH759, MH761, MH762, MH763, and MH765) were removed from Trench SU 276. MH759 and MH761 to MH763 were removed on March 16, 2011, MH765 was removed on March 17, 2011, and MH758 was removed on March 21, 2011. All manholes were placed on plastic sheeting pending further investigation. Insufficient sediment was found for sample collection and analysis. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.5.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 276 remained in place following the completion of the removal action.

6.5.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 14, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROC are summarized in Table 3-1 of the *Final Survey Unit 276 Project Report* (Shaw, 2012ac; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the

Final Survey Unit 276 Project Report. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Seventeen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were sent to the off-site laboratory for total Sr as a surrogate for ^{90}Sr analysis. One total Sr result was reported greater than the MDL; no sample results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 276 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 276 were 0.041 pCi/g for ^{137}Cs , 0.084 pCi/g for ^{90}Sr , and 0.492 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.042 pCi/g for ^{137}Cs , 0.245 pCi/g for ^{90}Sr , and 0.513 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 276 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. The model of Trench SU 276 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 276 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 276 Project Report* (Shaw, 2012ac; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 276 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and import fill soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.

- The model of the backfill material used for SU 276 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 2E-06. The model of Trench SU 276 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 276 Project Report* (Shaw, 2012ac; Appendix J) was issued in September 2012.

6.5.4 Backfill Activities

ESU 453 was used in part to backfill Trench SU 276 (170 cy). The analytical data from the screening activities at ESU 453 are presented below in Table 3-2 of the *Final Survey Unit 276 Project Report* (Shaw, 2012ac; Appendix J). Final data from ESU 453 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data package prepared by TestAmerica St. Louis for ESU 453 is presented in Appendix C of the *Final Survey Unit 276 Project Report*.

Approximately 850 cy of imported fill material from the Jericho import fill source was used to backfill Trench SU 276. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 276 footprint as part of GMP site restoration.

6.6 Trench Survey Unit 278

Trench SU 278 included trench segments 06-D28-32-1A, 06-D28-32-1E, 06-D28-32-1B, 06-D24-32-9C, and 06-D28-00-5A) and a volume of Navy-approved excavated and imported soil used for backfill. The location of Trench SU 278 is shown on Figure 5. Trench SU 278 is located in WA 28 and 24 within the potentially radiologically impacted area associated with GMP. Trench SU 278 consisted of two distinct excavations: one segment is at the east end of Manseau Street, and the other is immediately east of Building 381. Approximately 600 cy of soil were excavated from Trench SU 278. The excavated surface area is approximately 5,637 ft² (524 m²) with excavation depths varying between 2 and 7 feet bgs.

6.6.1 Removal Action Activities

Excavation of Trench SU 278 commenced on March 29, 2011, in trench segment 06-D28-32-1B, and removal of the pipe and soil was completed on the April 1, 2011. A total of 60 truckloads (approximately 600 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 417 linear feet of pipe was removed from Trench SU 278. Pipe was found in the trench between 1 to 6 feet bgs. SD trench segments 06-D28-32-1B and -9C contained 1.5-inch

diameter metal pipe. SD trench segment 06-D28-32-1A contained 42-inch diameter RCP and 06-D28-32-1E contained 8-inch VCP. SD trench segment 06-D28-00-5A contained 10-inch diameter metal pipe and was terminated at the outfall near Berth No. 21. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 278. The majority of the concrete and VCPs was disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 for processing along with the excavated soil. The remaining concrete pipe sections and metal pipes were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

One manhole (MH788) was removed on April 1, 2011 (Table 9). It was placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available from the manhole. The manhole was surveyed and disposed as LLRW by the Navy's LLRW contractor (Table 9).

One manhole (MH749) remained in place and was sampled (Table 8). The analytical results for the sediment samples collected from MH749 did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample analytical reports are provided in Appendix M.

The original systematic sampling screening results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 278 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MDA; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Ten of 18 systematic samples reported ^{226}Ra levels greater than the MDA; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

None of the original systematic samples that went through the on-site screening laboratory were sent off site for analyses associated with the other site ROCs.

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the SU 278 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger (summarized in Appendix B of the *Final Survey Unit 278 Project Report* [Shaw, 2012ae]). Following data collection, scanning data was reviewed for completeness and to identify any elevated areas. One location was selected to further investigate potentially anomalous measurements (discussed further in Appendix B of the *Final Survey Unit 278 Project Report*). The area was found to exceed the scanning investigation

level for the instrument used, and four additional biased samples (06-PD1T-278-019 through 06-PD1T-278-022) were collected.

Samples 06-PD1T-278-019, -021, and -022 were found to have concentrations of ^{137}Cs above the project release criterion of 0.113 pCi/g. Those samples were analyzed off site for total Sr as a surrogate for ^{90}Sr and for plutonium-239 (^{239}Pu) analysis. Sample 06-PD1T-278-022 had a detected concentration of total Sr above the project release criterion of 0.331 pCi/g for ^{90}Sr , and follow-up ^{90}Sr analysis was performed. The ^{90}Sr result was below the MDL; however, the MDL was above the release criterion of 0.331 pCi/g for ^{90}Sr (Appendix A.5). The sample was recounted in order to lower the MDL, and neither the new result nor MDL exceeded the release criterion for ^{90}Sr (Appendix A.6 of the *Final Survey Unit 278 Project Report* [Shaw, 2012ae]). One ^{239}Pu result exceeded the MDL, but all ^{239}Pu results were below the project release criterion for ^{239}Pu . Table 3-2 of the *Final Survey Unit 278 Project Report* summarizes the biased sampling results.

Remediation activities were performed over an approximate 36-square-foot area in the vicinity of MH788. Soil was removed to a depth of approximately 2.5 feet below the trench surface, resulting in the removal of approximately 3 cy of material that was disposed as LLRW. Six post-remediation samples (06-PD1T-278-023 to 06-PD1T-278-028) were collected within the original location of remediation, and all results were below project release criteria, as shown in Table 3-3 of the *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J).

6.6.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 278 remained in place following the completion of the removal action.

6.6.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on June 9, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-4 of the *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 278 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than or equal to the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than or equal to the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . The results for total Sr did not exceed the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 278 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 278 were 0.042 pCi/g for ^{137}Cs , 0.084 pCi/g for ^{90}Sr , and 0.366 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.138 pCi/g for ^{90}Sr , and 0.403 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of $3\text{E-}06$. The model of the trench SU resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of $5\text{E-}06$. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 278 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of $3\text{E-}06$. The model of the trench SU resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of $5\text{E-}06$. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of $3\text{E-}04$.

The *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J) was issued in September 2012.

6.6.4 278 Backfill Activities

ESU 464 was used in part to backfill Trench SU 278 (60 cy). The analytical data from the screening activities at ESU 464 are presented in Table 3-5 of the *Final Survey Unit 278 Project Report* (Shaw, 2012ae; Appendix J). Final data from ESU 464 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data package prepared by TestAmerica St. Louis for ESU 464 is presented in Appendix C of the *Final Survey Unit 278 Project Report*.

In addition to radiologically-screened excavated soil, approximately 540 cy of imported fill material from the Jericho import fill source was used to backfill Trench SU 278. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b).

A stormwater swale was constructed on top of portion of Trench SU 278 (along trench segment 06-D28-32-1A). The trench was graded (by backfilling) to allow for gravity drainage along Manseau Street to MH744. Nonwoven geotextile was laid on top of the graded trench; follow by a layer of ½-inch to 2-inch diameter drain rocks. A SD catch basin was installed at the end of the swale, connecting to MH744. In addition, 4 to 6 inches of crushed asphalt were placed on remainder of Trench SU 278 in WA 28 (along trench segments 06-D28-32-1B and -1E) as part of GMP site restoration.

6.7 Trench Survey Unit 279

Trench SU 279 included trench segments 06-D28-32-1K, -1S, -1T, -1W, and -2I and a volume of imported fill material used for backfill. The location of SU 279 is shown on Figure 5. Trench SU 279 consists of one trench segment, 06-D28-32-1K, located on GMP. The total excavated surface area was approximately 8,479 ft² (788 m²) with excavation depths varying between 4.5 and 6.3 feet bgs. Approximately 700 cy of soil were excavated from Trench SU 279.

6.7.1 Removal Action Activities

Excavation of Trench SU 279 commenced on September 26, 2011, in trench segment 06-D28-32-1T, and removal of the pipe and soil was completed on the September 30, 2011. A total of 70 truckloads (approximately 700 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 or RSY3 for processing.

Approximately 573 linear feet of pipe was removed from Trench SU 279. Pipe was found in trench between 3.5 to 5.3 feet bgs. SS segment 06-D28-32-1W and SD segments 06-D28-32-2I,

-1S, and -1T contained 6-inch to 10-inch VCP. SD trench segments 06-D28-32-1K contained 12-inch diameter RCP.

During the excavation of trench segments 06-D28-32-1T and -1S, two previously unidentified pipe sections were found (06-D28-32-2I and -1W). Trench segment 06-D28-32-2I contained 6-inch VCP and extended approximately 225 feet south-southwest from MH747. Trench segment 06-D28-32-1W contained 6-inch VCP and started in the middle of trench segment 06-D28-32-2E, extending approximately 175 feet southwest.

The majority of the concrete and VCPs was disintegrated upon removal and were transferred to the Basewide Radiological Contractor's RSY2 and RSY3 for processing along with the excavated soil. The remaining concrete pipe sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 279. Consequently, there are no sediment sample analytical results associated with Trench SU 279. The pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Three manholes (MH751, MH753, and MH757) were removed on September 27, 2011. The excavated manholes were placed on plastic sheeting pending further investigation. Insufficient sediment was found for sample collection and analysis. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.7.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 279 remained in place following the completion of the removal action.

6.7.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on October 18, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 279 Project Report* (Shaw, 2012af; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 279 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; however, none of the results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Sixteen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . All three samples reported as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 279 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 279 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.039 pCi/g for ^{137}Cs , 0.146 pCi/g for ^{90}Sr , and 0.296 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 279 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1.2E-06. The model of Trench SU 279 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7.1E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 279 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 279 Project Report* (Shaw, 2012af; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 279 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Import backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 279 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1.2E-06. The model of Trench SU 279 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7.1E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 279 Project Report* (Shaw, 2012af; Appendix J) was issued in September 2012.

6.7.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 279 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 279. Approximately 700 cy of imported fill material from the Jericho import fill source were used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 279 footprint of as part of GMP site restoration.

6.8 Trench Survey Unit 280

Trench SU 280 included seven trench segments 06-D28-70-3A, 06-D28-70-3B, 06-D28-32-3B, 06-D28-32-1X, 06-D28-32-1U, 06-D28-32-1V, and 06-D28-32-1T and a volume of imported fill material used for backfill. The location of SU 280 is shown on Figure 5. The total excavated surface area was approximately 8,709 ft² (809 m²) with excavation depths varying between 3.5 and 6.5 feet bgs. Approximately 870 cy of soil were excavated from Trench SU 280.

6.8.1 Removal Action Activities

Excavation of Trench SU 280 commenced on September 26, 2011, in trench segment 06-D28-32-1T, and removal of the pipe and soil was completed on the October 5, 2011. A total of 87 truckloads (approximately 870 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 and RSY3 for processing.

Approximately 598 linear feet of pipe was removed from Trench SU 280. Pipe was found in trench between 2.5 to 5.5 feet bgs. SD trench segments 06-D28-70-3A and -3B, trench segments 06-D28-32-3B, -1U, and -1V contained 4-inch VCP. SD trench segments 06-D28-32-1T and -1X contained 8-inch and 12-inch VCP, respectively.

Trench segments 06-D28-32-3B, -1U, -1V, and -1X, and 06-D28-70-3B were not previously identified in the D-1 Sewer Design Plan (Shaw, 2010d). Trench segment 06-D28-32-1U and -1V were discovered during excavation of MH746, and subsequently traced to trench segments 06-D28-32-1X, -3B, and 06-D28-70-3B.

The majority of the VCPs was disintegrated upon removal and was transferred to the Basewide Radiological Contractor's RSY2 or RSY3 for processing along with the excavated soil. The remaining VCP sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 280. Consequently, there are no sediment

sample analytical results associated with Trench SU 280. The pipes were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

One manhole (MH746) was removed on September 26, 2011. It was placed on plastic sheeting pending investigation. Insufficient sediment was found for sample collection and analysis. The manhole was surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

6.8.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 280 remained in place following the completion of the removal action.

6.8.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on October 19, 2011 and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 280 Project Report* (Shaw, 2012a; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 280 Project Report*. None of the systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Ten of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . Both samples reported as below the MDL; therefore, none of the results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 280 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 280 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.038 pCi/g for ^{137}Cs , 0.140 pCi/g for ^{90}Sr , and 0.180 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 280 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 280 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 280 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 280 Project Report* (Shaw, 2012ag; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 280 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 280 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 280 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 280 Project Report* (Shaw, 2012ag; Appendix J) was issued in October 2012.

6.8.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 280 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 280. Approximately 870 cy of imported fill material from the Jericho import fill source were used for backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 280 footprint of as part of GMP site restoration.

6.9 Trench Survey Unit 281

Trench SU 281 included two trench segments (06-D28-32-2I and 06-D28-32-1W) and a volume of imported fill material used for backfill. The location of Trench SU 281 is shown on Figure 5. The total excavated surface area was approximately 2,262 ft² (210 m²) of with excavation depths varying between 2.5 and 5 feet bgs. Approximately 150 cy of soil were excavated from Trench SU 281.

6.9.1 Removal Action Activities

Excavation of Trench SU 281 commenced on October 5, 2011, in trench segment 06-D28-32-2I, and removal of the pipe and soil was completed on the same day. A total of 21 truckloads of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 155 linear feet of pipe was removed from Trench SU 281 during excavation activities. Trench SU 281 pipe was found in trench between 1.5 to 4 feet bgs. SD trench segment 06-D28-32-1W and SS trench segment 06-D28-32-2I contained 6-inch VCP. Both trench segments were not previously identified in the D-1 Sewer Design Plan (Shaw, 2010d). All VCPs were disintegrated upon removal and were transferred to the Basewide Radiological Contractor's RSY2 for processing along with the excavated soil. Because the piping was crushed and disintegrated, sampling the pipe sediment was not possible. No manhole was associated with Trench SU 281.

6.9.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 281 remained in place following the completion of the removal action.

6.9.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on November 10, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 281 Project Report* (Shaw, 2012ah; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 281 Project Report*. None of the systematic samples reported ¹³⁷Cs levels greater than the MDL; therefore, none of the results exceeded the project release criterion for ¹³⁷Cs (0.113 pCi/g). Seventeen of the 18 systematic samples reported ²²⁶Ra levels greater than the MDL; however, no results exceeded the project release criterion for ²²⁶Ra (1.485 pCi/g).

Three of 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . Two of the three samples were reported as below the MDL; no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 281 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 280 were 0.040 pCi/g for ^{137}Cs , 0.000 pCi/g for ^{90}Sr , and 0.396 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.147 pCi/g for ^{90}Sr , and 0.388 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 281 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. The model of Trench SU 281 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 281 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 281 Project Report* (Shaw, 2012ah; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 281 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at SU 281 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. The model of Trench SU 281 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 281 Project Report* (Shaw, 2012ah; Appendix J) was issued in October 2012.

6.9.4 Backfill Activities

Excavated soil from the trench segments associated with Trench SU 281 was disposed according to the requirements for chemically contaminated soil. Only imported fill material was used to backfill Trench SU 281. Approximately 150 cy of imported fill material from the Jericho import fill source were used as backfill. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were placed on top of Trench SU 281 footprint of as part of GMP site restoration.

6.10 Trench Survey Unit 282

Trench SU 282 included trench segment 06-D28-00-6A and a volume of excavated fill material used for backfill. The location of Trench SU 282 is shown on Figure 5. The total excavated surface area was approximately 230 ft² (21 m²) with an excavation depth of 2 feet bgs. Approximately 10 cy of soil were excavated from Trench SU 282.

6.10.1 Removal Action Activities

Excavation of Trench SU 282 commenced on October 21, 2011, in trench segment 06-D28-00-3A, and removal of the pipe and soil was completed on the same day. One truckload (approximately 10 cy) of overburden soil and peripheral material was excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 26 linear feet of pipe was removed from Trench SU 282 during excavation activities. Pipe was found in trench around 1 foot bgs. SS trench segment 06-D28-00-6A contained 4-inch metal pipe. This trench segment originated from Building 381 and was terminated at the Parcel D-1/RSY2 boundary. All metal pipe sections were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 282. Consequently, there are no sediment sample analytical results associated with Trench SU 282. The pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor. No manhole was associated with Trench SU 282.

6.10.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 282 remained in place following the completion of the removal action.

6.10.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan*,

Version 6.0 (PNNL, 2010). Final systematic samples were collected from 18 locations on November 15, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 282 Project Report* (Shaw, 2012ai; Appendix J), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 282 Project Report*. None of the systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . All samples reported as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 282 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 282 were 0.043 pCi/g for ^{137}Cs , 0.200 pCi/g for ^{90}Sr , and 0.440 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.045 pCi/g for ^{137}Cs , 0.157 pCi/g for ^{90}Sr , and 0.476 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 282 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. The model of Trench SU 282 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 282 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 282 Project Report* (Shaw, 2012ai; Appendix J).

No further action is required, and unrestricted release is recommended for Trench SU 282 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.

- Analytical results from the radiologically-screened excavated soil were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 282 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. The model of Trench SU 282 resulted in a maximum above-background dose of 0.07 mrem/yr and an ELCR of 1E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 282 Project Report* (Shaw, 2012ai; Appendix J) was issued in October 2012.

6.10.4 Backfill Activities

Excavated soil from ESUs 619 and 623 were used to backfill Trench SU 282. Samples from ESUs 619 and 623 were collected and labeled according to each individual pile but were combined for evaluation of release and dose modeling. The analytical data from the screening activities at ESUs 619 and 623 are presented in Table 3-3 of the *Final Survey Unit 282 Project Report* (Shaw, 2012ai; Appendix J). Final data from the ESUs were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared by TestAmerica St. Louis for ESUs 619 and 623 are presented in Appendix C of the *Final Survey Unit 282 Project Report*. No imported fill material was used to backfill Trench SU 282.

6.11 Building 383

The following sections summarize the radiological work performed for the Building 383 Site, provide an abbreviated history, identify the FSS results, and discuss regulatory concurrence for unrestricted radiological release of the property. The *Final, Final Status Survey Report, Building 383 Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013c; Appendix J) details the radiological survey activities. The location of the Building 383 Site is shown on Figure 2.

6.11.1 Description and Background

The Building 383 Site is located between Berths 16 and 20 on GMP in WA 28 within Parcel D-1 (Figure 2). The HRA (NAVSEA, 2004) identified the Building 383 Area as a separate radiologically impacted area from the GMP.

Building 383 was a two-story steel and concrete, flat-roofed building, with a footprint measuring approximately 110 feet by 60 feet (Figure 2). Building 383 was demolished in late 2010 to early 2011 by Shaw in coordination with the Navy to facilitate the radiological survey and remediation

of the building footprint. Additional foundation and support materials were removed in from the area in 2012. The Building 383 Area currently consists of the land associated with the building footprint and buffer zone.

Building 383 was constructed in 1985 at the former location of a small building where radioluminescent deck markers from ships were stored and managed (NAVSEA, 2004). The exact location of the small “turn-in” building is not known. The Building 383 Site was designated as a radiologically impacted site because of the use of the area before construction of the recent building.

There is no current use of the Building 383 Site. The San Francisco Redevelopment Agency *Hunters Point Shipyard Reuse Plan* identifies the planned future use of the area as a maritime industrial area (1997). The ROCs for the Building 383 Site are ^{137}Cs , ^{239}Pu , ^{226}Ra , and ^{90}Sr (NAVSEA, 2004).

6.11.2 Final Status Survey Summary

The Building 383 Site survey activities were initiated in the fall of 2010. The selected background soil reference area for Parcel D-1, including the Former Building 383 Site, was located adjacent to Building 526. This area was determined to be nonimpacted from Navy operations (NAVSEA, 2004). For consistency with basewide practices, the Building 116 reference area in Parcel B was used for collection of background gamma scanning and static measurement data.

The NRC release limit for unrestricted use was applied in assessing the results of the surveys of the Former Building 383 Site. Results were also analyzed using the more conservative EPA Office of Solid Waste and Emergency Response Directive 9200.1-34b to determine if the residual radioactivity, distinguishable from background radiation, resulted in a TEDE to an average member of the critical (screening) group exceeding 15 mrem/yr or an ELCR of no more than $3\text{E-}04$, and if the residual radioactivity had been reduced to levels that were ALARA. This radiological release process ensures that residual radioactivity will not result in individuals being exposed to unacceptable levels of radiation or radioactive materials.

Prior to the start of field activities, the Building 383 Site was included in the RCA boundary established for Parcel D-1. A site walk was conducted to identify any potential safety hazards. Prior to conducting soil surveys and sampling, the interior of Building 383 was vacated and cleaned out. The building was then demolished and the foundation slab and underlying asphalt were removed. In June 2012, additional subgrade footer walls and the elevator shaft well were removed.

The Building 383 Site was divided into one Class 1 SU and one Class 2 SU. Gamma scan measurements were performed on 100 percent of the Class 1 and approximately 100 percent of the Class 2 SU. All scan results were below project investigation levels and small areas of elevated activity were not observed. Gamma static measurements were collected at systematic locations. Two static measurements exceeded the investigation levels specified for the instruments used at sample locations, and the associated samples either were below the project release criteria or were remediated. Soil samples were collected from systematic locations. No activity above the release criteria was identified in any of the systematic soil samples for any ROC.

Modeling for the Former Building 383 Site was performed to calculate the residual dose to the critical group. The model of B383-SU1 resulted in a maximum above-background dose of 0.5170 mrem/yr and an ELCR of 6.823E-06. The model of B383-SU2 resulted in a maximum above-background dose of 0.5082 mrem/yr and an ELCR of 6.717E-06. These results meet the project dose and risk criteria of a 15 mrem/yr limit and an ELCR of less than 3E-04.

No evidence of residual radioactivity above the release criteria was found to be present at the Building 383 Site. Based on the survey results and modeling efforts, the Building 383 Site was recommended for unrestricted radiological release (Appendix J).

6.11.3 Regulatory Concurrence

The *Final, Final Status Survey Report, Building 383 Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013c; Appendix J) was submitted to the Navy and the regulatory agencies in March 2013. Concurrence by the regulatory agencies for radiological release for unrestricted use of the Building 383 Site was received in August 2013.

6.12 Gun Mole Pier

The following sections summarize the radiological work performed for the GMP in WAs 28 and 29, provide an abbreviated history, identify the FSS results, and discuss regulatory concurrence for unrestricted radiological release. The *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J) details the radiological survey activities. The location of the GMP is shown on Figure 5.

6.12.1 Description and Background

The GMP is located in the southeast portion of Parcel D-1 and bounded on the west side by Manseau Street (Figure 2). It was identified in the HRA as radiologically impacted (NAVSEA, 2004). The GMP, also known as the re-gunning pier, is a large, flat rectangular structure. It is approximately 400 feet wide and 1,700 feet long (Figure 5). The major feature of the pier is the 450-ton gantry crane (i.e., the re-gunning crane) originally used to remove gun turrets from ships. Building footprints 380, 384, 377, 385, 379, 378, 370, and 376 and the

re-gunning crane are located on the pier. The GMP was used for a variety of radiological activities beginning shortly after World War II. Known radiological uses of the pier include the following:

- Radioactive pavement decontamination study
- Decontamination studies on NRD L Experimental Barge YFN-809 and on a contaminated B-17 aircraft
- Landing area for NRD L Barge YFNX-16
- Decontamination and laboratory facility
- Support for decontamination experiments and operations of surface vessels in the late 1940s

Preparation of the GMP for FSS included the demolition of Buildings 370, 375 (360), 376, 377, 378, 379, 380, 383, 384, 385, the demolition of a storage shed adjacent to Building 380, the removal of surface covering asphalt, the removal of concrete building foundations, the removal of crane and train steel rails, the removal of wood rail ties, and the removal of SS/SD lines. Demolition of the GMP buildings included the pre-demolition performance of lead-based paint and asbestos abatement following pre-existing building characterization survey data. All material removed during abatement of the building surfaces were dispositioned as nonmixed waste as the building structures were not characterized as radiologically impacted. All building material generated from the structural demolition was disposed of as demolition debris.

Demolition of the buildings and the removal of the associated electrical infrastructure required the re-routing of the Federal Aviation Agency aircraft warning light electrical feed lines. The electrical lines were installed along the pier sea wall, and then traverse across the ground to the re-gunning crane.

The removed asphalt from each designated SU was separately staged in a lay down area adjacent to the GMP pending the review of the *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J) ground survey and sampling data. Following the review of the ground surface FSS survey and sampling data, all removed asphalt from the GMP (21,457 tons), excluding asphalt removed from GMP SU 26 (290 tons) was crushed and reused as ground cover on the GMP. The asphalt removed from GMP SU 26 was handled and disposed of as LLRW (Section 9.2).

The removed steel crane and train rails were also staged in a lay down area adjacent to the GMP. All steel crane and train rails were surveyed. All accessible surfaces of the steel crane and train rails were surveyed for fixed and removable surface contamination. No measurements exceeding the project surface contamination criteria were identified (Table 2).

The wood rail ties were initially removed and prepared for disposition as LLRW. Following additional post-removal reviews in coordination with the Navy, the wood rails ties were staged adjacent to the GMP pending future release surveys.

As identified in the HRA (NAVSEA, 2004), the ROCs at GMP are ^{137}Cs , plutonium-239 (^{239}Pu), ^{226}Ra , and ^{90}Sr (Table 1).

6.12.2 Final Status Survey Summary

The GMP was prepared for survey in late 2010 and the debris was radiologically surveyed and cleared as appropriate. The site was initially partitioned into 72 Class 1 SUs and one Class 2 SU with an area extending out as a 15 ft buffer zone on the landward side of the pier. Subsequent evaluations that established a requirement to remove additional foundations as well as the agreement that some foundations and features were acceptable to remain in place, identified that a realignment of SU boundaries was necessary. Large scale soil remediation in the potential placement location of the NRDL barge, also contributed to the realignment of SU boundaries. For the performance of the FSS on the GMP, the GMP was partitioned into 71 Class 1 SUs and 2 Class 2 SUs. Prior to the removal of ground surface covering asphalt and the removal of crane and train steel rails and wooden ties, A 100 percent scan for gamma emitters was performed in the Class 1 SUs, and a 50 percent scan for gamma emitters was performed in the Class 2 SU to identify small areas of elevated activity; none were found. The surface covering asphalt was removed and staged in separate piles from each designated surface SU, the asphalt was staged for further radiological release evaluation. The metal crane and train steel rails and the wooden ties were staged for radiological release evaluation. The 100 percent gamma scan in the Class 1 SUs and the 50 percent gamma scan of the Class 2 SUs was again performed following the removal of the surface covering asphalt and crane and train steel rails and wooden ties. Two articles of radioactive material were identified during SUs FSS gamma scans. The discrete items were identified and removed with the additional actions of soil remediation in the immediate area. Post-remediation soil samples met the FSS release criteria. A minimum of 20 systematic samples were collected from each SU and analyzed at the on-site (initial screening) and off-site (final results) laboratories. Soil remediation was required in 16 of the 77 GMP SUs due to elevated ^{137}Cs , ^{226}Ra , or ^{90}Sr results.

Surveys for fixed and removable surface contamination were performed on all remaining GMP concrete infrastructure, including the pier walls; utility hoods; building foundations; re-gunning crane support foundations and base pedestals; electrical pads, vaults, and corridors; and other miscellaneous items. The utility corridor surveys for one utility corridor, GEC04, were performed following a work variance (WV) (WV#5) to the *Final, Final Task-Specific Plan Addendum, Gun Mole Pier Area Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012b), due to the presence of deteriorate asbestos-containing material within

the corridor (Appendix D). A total of 9 concrete pads, 88 vaults, 37 utility hoods, 14 pier wall segments, 2 building foundations, 4 crane support foundations, 8 crane base pedestals, the elevator shaft building, and 4 utility corridors were surveyed and no measurements exceeding the project surface contamination criteria were identified.

Surveys on GMP were completed in July 2013.

No further action is required and unrestricted release is recommended for GMP based on the following reasons:

- All analytical results for ^{226}Ra , ^{137}Cs , and total Sr from final systematic samples collected from the GMP and buffer area were below project release criteria, with the exception of four SUs (GMP24, GMP25, GMP30, and GMP77) which had one or more final samples with analytical results that exceeded the project release criteria for ^{137}Cs . For those SUs, an initial dose and risk modeling run was performed with inputs determined as described above. In addition, a second run was performed conservatively using the maximum detected results for elevated ROCs along with the average results for non-elevated ROCs for the SU as the representative input for the calculation.
- Impacted soil areas with elevated sampling results were sufficiently bounded and remediated, as demonstrated in the *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J).
- Gamma scanning was performed on 100 percent of GMP SUs and two discrete sources (commodities) were found. In both cases the commodity and adjacent soil was removed and post-removal soil sampling confirmed that no residual contamination was left where the commodity was found. All other potential scanning anomalies were investigated and found to represent variability in background.
- Surface contamination surveys were performed on all remaining GMP infrastructure and all survey results were below project surface contamination criteria.
- Qualitative ALARA criteria were met.

Dose and risk modeling performed for the GMP SUs resulted in a maximum above-background dose of 2.125 mrem/yr and ELCR of 3.172E-05, both from GMP51. This dose and risk modeling demonstrated that the residual dose and risk, under a conservative exposure scenario, were well below the project dose limit of 15 mrem/yr and ELCR of 3E-04 and therefore meet project requirements for unrestricted release.

6.12.3 Regulatory Concurrence

The *Final, Final Status Survey Report, Gun Mole Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2014b; Appendix J) was submitted to regulatory agencies

in September 2013. Concurrence by the regulatory agencies for radiological release for unrestricted use of the GMP is pending.

7.0 Work Area 29

WA 29 is located on the GMP at the eastern end of Parcel D-1 (Figure 2). The GMP is divided into two WAs: WA 28 and WA 29. WA 29 encompasses the southeastern portion of the GMP. It is bounded on the northwest by Parcel D-1 WA 28 and the remaining sides of the pier are surrounded by Parcel F and the Bay. The radiological work activities performed for WA 29 included Trench SUs 266, 267, 268, 269, 275, and 276 and surveys of the remaining features and foundations within the pier following demolish activities. The following sections summarize the work activities completed in WA 29 to support the recommended radiological release for unrestricted use of the Parcel D-1 property.

7.1 Trench Survey Unit 266

Trench SU 266 included trench segments 06-D29-00-14G, -14F, -14E, -14D, -14C, -14B, -14A; and 06-D29-68-14F, -14D, and -14A and a volume of excavated and imported fill material used for backfill. The location of Trench SU 266 is shown on Figure 5. Trench SU 266 is located along the GMP. The total excavated surface area was approximately 7,815 ft² (726 m²) with excavation depths varying between 3 and 5.8 feet bgs. Approximately 680 cy of soil were excavated from Trench SU 266.

7.1.1 Removal Action Activities

Excavation of Trench SU 266 commenced on February 9, 2011, in trench segment 06-D29-00-14G, and removal of the pipe and soil was completed on March 4, 2011. A total of 68 truckloads (approximately 680 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 600 linear feet of pipe was removed from Trench SU 266. Pipe was found in the trench between 2 to 4.8 feet bgs. All trench segments contained 8-inch to 12-inch diameter CMPs. All pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

A portion of trench segment 06-D29-68-14D was not previously identified in the D-1 Sewer Design Plan (Shaw, 2010d). An additional 19 linear feet of pipe was found extending from MH744 toward and connecting to an electrical corridor (GECSU25). Trench segment 06-D29-00-14G was terminated at the outfall along Berth No. 19.

Six manholes (MH744, MH776 to MH780) were removed from Trench SU 266 (Table 9). MH778 and MH780 were removed on March 1, 2011. MH779 was removed on March 2, 2011. MH744, MH776, and MH777 were removed on March 4, 2011. Sufficient sediment for sample

collection and analysis was found in MH780 (Table 8). The analytical results for the sediment samples collected from MH780 did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample analytical reports are provided in Appendix M. The manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

The original systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 266 Project Report*. One of the 18 systematic samples (06-PD1T-266-011) reported ^{137}Cs levels greater than the MDA; and that result exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Eight out of 18 systematic samples reported ^{226}Ra levels greater than the MDA; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three out of the 18 original systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . One of the results for total Sr was reported above the MDL; however, this result did not exceed the project release criterion for ^{90}Sr (0.331 pCi/g).

Sample 06-PD1T-266-011 was analyzed off site for plutonium-239 (^{239}Pu). The reported ^{239}Pu concentration was greater than the MDL; however, it did not exceed the project release criterion for ^{239}Pu (2.590 pCi/g).

Remedial activities were performed over an approximate 162-ft² area that encompassed the area represented by sample 06-PD1T-266-011. Soil was removed to a depth of 0.5 foot below the trench surface, thus resulting in the removal of approximately 3 cy of material that was disposed as LLRW. Three post-remediation samples (06-PD1T-266-019, 06-PD1T-266-020, and 06-PD1T-266-021) were collected at the original location of sample 06-PD1T-266-011 and the adjacent area, and one result (06-PD1T-266-019) exceeded the project release criterion for ^{137}Cs , as shown in Table 3-2 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K).

Remedial activities were performed again over an approximate 150- ft² area that encompassed the area represented by sample 06-PD1T-266-019. Soil was removed to a depth of 1 foot below the trench surface, resulting in the removal of approximately 5.5 cy of material that was disposed as LLRW. Five post-remediation samples (06-PD1T-266-029 to 06-PD1T-266-033) were collected at the original location of sample 06-PD1T-266-019 and the adjacent area, and two results (06-PD1T-266-029 and 06-PD1T-266-030) exceeded the project release criterion for ^{137}Cs , as shown below in Table 3-3 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K).

Remedial activities were performed again over an approximate 150 ft² area that encompassed the area represented by samples 06-PD1T-266-029 and 06-PD1T-266-030. Soil was removed to a depth of 1 foot below the trench surface, thus resulting in the removal of approximately 5.5 cy of material that was disposed as LLRW. Five post-remediation samples (06-PD1T-266-034, to 06-PD1T-266-038) were collected at the original location of samples 06-PD1T-266-029 and 06-PD1T-266-030 and the adjacent area, and all results were below the project release criteria, as shown in Table 3-4 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K).

7.1.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 266 remained in place following the completion of the removal action.

7.1.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on October 3, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-5 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 266 Project Report*. None of the 18 systematic samples reported ¹³⁷Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ¹³⁷Cs (0.113 pCi/g). All 18 systematic samples reported ²²⁶Ra levels greater than the MDL; however, no results exceeded the project release criterion for ²²⁶Ra (1.485 pCi/g).

Two of the 18 final systematic samples were analyzed off site for total Sr as a surrogate for ⁹⁰Sr. The results for total Sr did not exceed the MDL; therefore, no results exceeded the project release criterion for ⁹⁰Sr (0.331 pCi/g).

For the FSS, Trench SU 266 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 266 were 0.043 pCi/g for ¹³⁷Cs, 0.114 pCi/g for ⁹⁰Sr, and 0.378 pCi/g for ²²⁶Ra. The trench unit average net residual radioactivity concentrations were 0.042 pCi/g for ¹³⁷Cs, 0.149 pCi/g for ⁹⁰Sr, and 0.330 pCi/g for ²²⁶Ra. The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 266 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 266 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD output files for the two Trench SU 266 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K).

No further action is required, and unrestricted release is recommended for Trench SU 266 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material were below project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 266 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 266 resulted in a maximum above-background dose of 0.5 mrem/yr and an ELCR of 7E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K) was issued in October 2012.

7.1.4 Backfill Activities

Excavated soil from ESUs 412 (160 cy), 424 (250 cy), and 434 (80 cy) were used in part to backfill Trench SU 266. The analytical data from the screening activities at ESUs 412, 424, and 434 are presented in Tables 3-6 through 3-8 of the *Final Survey Unit 266 Project Report* (Shaw, 2012s; Appendix K), respectively. Final data from the ESUs were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared by TestAmerica St. Louis for ESUs 412, 424, and 434 are presented in Appendix C of the *Final Survey Unit 266 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 190 cy of imported fill material from the Jericho import fill source were also used to backfill Trench SU 266. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). As part of the GMP site restoration, a layer of 4-inch to 6-inch of crushed asphalt was placed on top of Trench SU 266 footprint.

7.2 Trench Survey Unit 267

Trench SU 267 included trench segments 06-D29-00-1B, -9A, -9B, -10A, -11A, -11B, -11C, and -11D as well as 06-D29-68-1B, -10A, -11B and -11E and a volume of imported and excavated fill material used for backfill. Trench SU 267 is located towards the southeast end of GMP crossing the pier width, as shown on Figure 5. The total excavated surface area was approximately 9,176 ft² (857 m²) with excavation depths varying between 2 and 6 feet bgs. Approximately 600 cy of soil were excavated from Trench SU 267.

7.2.1 Removal Action Activities

Excavation of Trench SU 267 commenced on February 9, 2011, in trench segment 06-D29-68-11B, and removal of the pipe and soil was completed on March 30, 2011. A total of 60 truckloads (approximately 600 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing. During excavation of Manhole MH774, a previously unidentified SD line was found and designated 06-D29-00-11D. Approximately 101 linear feet of this pipe segment was identified extending toward MH773. Likewise, during excavation MH775, another previously unidentified SD line was found and designated 06-D29-68-11E. This line extended approximately 35 linear feet east from MH775.

Approximately 778 linear feet of pipe was removed from Trench SU 267 during excavation activities. Pipe was found in trench between 1 to 5 feet bgs. All trench segments contained 2-inch to 10-inch diameter CMPs. All pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Five manholes (MH745, MH772 to MH775) were removed from Trench SU 267. MH745 and MH775 were removed on March 8, 2011. MH773 and MH774 were removed on March 9, 2011. MH772 was removed on March 15, 2011. Sufficient sediment for sample collection and analysis were found in MH745 and MH775 (Table 8). The analytical results for the sediment sample collected from MH745 and MH775 did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample analytical reports are provided in Appendix M. The manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

7.2.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 267 remained in place following the completion of the removal action.

7.2.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 15, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The final systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 267 Project Report* (Shaw, 2012t; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 267 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MDL, therefore no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Seventeen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were sent to the off-site laboratory for total Sr analysis as a surrogate for ^{90}Sr . One of the samples was reported at a level greater than the MDL for total Sr; however, the result did not exceed the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 267 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 267 were 0.041 pCi/g for ^{137}Cs , 0.039 pCi/g for ^{90}Sr , and 0.392 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.211 pCi/g for ^{90}Sr , and 0.301 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 267 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. The model of Trench SU 267 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 267 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 267 Project Report* (Shaw, 2012t; Appendix K).

No further action is required, and unrestricted release is recommended for Trench SU 267 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and import fill soil used for backfill met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 267 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. The model of Trench SU 267 resulted in a maximum above-background dose of 0.8 mrem/yr and an ELCR of 1E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 267 Project Report* (Shaw, 2012t; Appendix K) was issued in September 2012.

7.2.4 Backfill Activities

ESUs 434 (100 cy) and 444 (40 cy) were used to backfill Trench SU 267. The analytical data from the screening activities at ESUs 434 and 444 are presented in Tables 3-2, and 3-3 of the *Final Survey Unit 267 Project Report* (Shaw, 2012t; Appendix K), respectively. Final data from ESUs 434 and 444 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared by TestAmerica St. Louis for ESUs 434 and 444 are presented in Appendix C of the *Final Survey Unit 267 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 460 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 267. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). As part of the GMP site restoration, 4- to 6-inches of crushed asphalt were placed on top of Trench SU 267 footprint.

7.3 Trench Survey Unit 268

Trench SU 268 included trench segments 06-D28-32-1M, -1N, -1R, and -2H as well as 06-D29-00-1A, -2A, and -16A and volumes of screened excavated soil and import fill material used for backfill. Trench SU 268 starts at the western end of WA 28 on GMP and extends into WA 29 as shown on Figure 5. The footprint of Trench Unit 268 had a total excavated surface

area of approximately 8,450 ft² (785 m²) with excavation depths varying between 2 and 4.3 feet bgs. Approximately 740 cy of soil were excavated from Trench SU 268.

7.3.1 Removal Action Activities

Excavation of Trench SU 268 commenced on March 10, 2011, in trench segment 06-D29-00-1A, and removal of the pipe and soil was completed on March 21, 2011. A total of 74 truckloads (approximately 740 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing. During excavation of trench segment 06-D29-00-1A, a previously unidentified SD line was found and designated 06-D29-00-16A. Approximately 224 linear feet of this pipe segment was identified in between SS line 06-D29-00-1A and the large concrete pad in the middle of GMP (designated as GCP01).

Approximately 1,129 linear feet of pipe was removed from Trench SU 268. Pipe was found in the trench between 1 and 3.3 feet bgs. SS trench segments 06-D29-00-1A and 06-D28-32-2H contained 5-inch diameter metal pipes. SD trench segment 06-D29-00-16A contained 4-inch wide cast-in-place concrete drain. All metal pipe sections and concrete drain section were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor. SD trench segments 06-D29-00-2A, 06-D28-32-1M, -1N, and -1R contained 10-inch to 15-inch VCP. All VCP were disintegrated upon removal and transferred to the Basewide Radiological Contractor's RSY2 for processing along with excavated soil.

Two manholes (MH760 and MH764) were removed from Trench SU 268. MH760 and MH764 were removed on March 15, 2011, and March 14, 2011, respectively. An inadequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 268. Consequently, there are no sediment sample analytical results associated with Trench SU 268. The manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

7.3.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 268 remained in place following the completion of the removal action.

7.3.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 13, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 268 Project Report* (Shaw, 2012u; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 268 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Seventeen of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . Both samples reported total Sr as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 268 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 268 were 0.044 pCi/g for ^{137}Cs , 0.124 pCi/g for ^{90}Sr , and 0.407 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.154 pCi/g for ^{90}Sr , and 0.613 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 268 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of the trench surfaces for Trench SU 268 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of 8E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 268 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 268 Project Report* (Shaw, 2012u; Appendix K).

No further action is required, and unrestricted release is recommended for Trench SU 268 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material were below the project release criteria.

- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 268 resulted in a maximum above-background dose of 0.3 mrem/yr and an ELCR of 4E-06. The model of the trench surfaces for Trench SU 268 resulted in a maximum above-background dose of 0.6 mrem/yr and an ELCR of 8E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 268 Project Report* (Shaw, 2012u; Appendix K) was issued in September 2012.

7.3.4 Backfill Activities

Excavated soil from ESUs 434, 444, and 456 were used in part to backfill Trench SU 268 with approximate volumes of 70 cy, 170 cy, and 20 cy, respectively, used from each ESU. The analytical data from the screening activities at ESUs 434, 444, and 456 are presented below in Tables 3-2, 3-3, and 3-4 of the *Final Survey Unit 268 Project Report* (Shaw, 2012u; Appendix K), respectively. Final data from the ESUs were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data packages prepared by TestAmerica St. Louis for ESUs 434, 444, and 456 are presented in Appendix C of the *Final Survey Unit 268 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 480 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 268. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). As part of the GMP site restoration, a layer of 4-inch to 6-inch of crushed asphalt was placed on top of Trench SU 268 footprint.

7.4 Trench Survey Unit 269

Trench SU 269 included two trench segments, 06-D29-00-12A and 06-D29-00-13A, and a volume of excavated and imported fill material used for backfill. Trench SU 269 is located along the GMP as shown on Figure 5. The total excavated surface area was approximately 2,068 ft² (192 m²) with excavation depths varying between 5 and 6 feet bgs. Approximately 300 cy of soil were excavated from Trench SU 269.

7.4.1 Removal Action Activities

Excavation of Trench SU 269 commenced on March 10, 2011, in trench segment 06-D29-00-12A, and removal of the pipe and soil was completed on March 11, 2011. A total of 30 truckloads (approximately 300 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

Approximately 119 linear feet of pipe was removed from Trench SU 269 during excavation activities. Pipe was found in the trench between 4 to 5 feet bgs. SD trench segments 06-D29-00-12A and 06-D29-00-13A contained 8-inch diameter metal pipes. All metal pipe sections and concrete drain section were excavated out and placed on plastic sheeting pending further investigation. An adequate volume of sediment for sample collection and analysis was not available in the piping excavated from Trench SU 269. Consequently, there are no sediment sample analytical results associated with Trench SU 269. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor. No manhole was associated with Trench SU 269.

7.4.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 269 remained in place following the completion of the removal action.

7.4.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 12, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 269 Project Report* (Shaw, 2012v; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 269 Project Report*. None of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All of the 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were analyzed at the off-site laboratory for total Sr as a surrogate for ^{90}Sr . No results for total Sr were reported above the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 269 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 269 were 0.044 pCi/g for ^{137}Cs , 0.087 pCi/g for ^{90}Sr , and 0.402 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.044 pCi/g for ^{137}Cs , 0.155 pCi/g for ^{90}Sr , and 0.355 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used for Trench SU 269 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 269 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 269 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 269 Project Report* (Shaw, 2012v; Appendix K).

No further action is required, and unrestricted release is recommended for Trench SU 269 for the following reasons:

- All analytical results from systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used for Trench SU 269 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU 269 resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 269 Project Report* (Shaw, 2012v; Appendix K) was issued in September 2012.

7.4.4 Backfill Activities

Excavated soil from ESU 444 (40 cy) was used in part to backfill Trench SU 269. The analytical data from the screening activities at ESU 444 are presented in Table 3-2 of the *Final Survey Unit 269 Project Report* (Shaw, 2012v; Appendix K). Final data from ESU 444 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data package prepared by TestAmerica St. Louis for ESU 444 is presented in Appendix C of the *Final Survey Unit 269 Project Report*.

In addition to the radiologically-screened excavated soil, approximately 260 cy of imported fill material from Jericho import fill source was also used to backfill Trench SU 269. Import fill

sample information is presented in the SUPRA SSSD (TtEC, 2011b). As part of the GMP site restoration, a layer of 4-inch to 6-inch of crushed asphalt was placed on top of Trench SU 269 footprint.

7.5 Trench Survey Unit 275

Trench SU 275 included 11 trench segments, 06-D29-00-3A, -4A, -5A, -5B, -6A, -6B, -6C, -6D, -7A, -8A, and -16B and a volume of excavated and imported fill material used for backfill. Trench SU 275 encompassed five discrete dig sites on GMP as shown on Figure 5. The total excavated surface area was approximately 6,759 ft² (628 m²) with excavation depths varying between 1.5 and 6.9 feet bgs. Approximately 510 cy of soil were excavated from Trench SU 275.

7.5.1 Removal Action Activities

Excavation of Trench SU 275 commenced on March 16, 2011, in trench segment 06-D29-00-8A, and removal of the pipe and soil was completed on March 23, 2011. A total of 51 truckloads (approximately 510 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for processing.

During excavation of MH769, a previously unidentified SD line was found and designated as 06-D29-00-16B. Approximately 35 linear feet of this pipe segment was identified extending southwest from MH769 to pipe segment 06-D29-00-16A. In addition trench segments 06-D29-00-6A, -6C, and -7A were found to be approximately 11 feet, 20 feet, and 9 feet longer than indicated in the D-1 Sewer Design Plan (Shaw, 2010d), respectively.

Approximately 519 linear feet of pipe was removed from Trench SU 275 during excavation activities. Pipe was found in trench between 0.5 to 5.9 feet bgs. SD trench segments 06-D29-00-3A, -4A, -5A, -5B, -6A, -6B, -6D, and -16B contained 8-inch diameter metal pipes. SD trench segments 06-D29-00-6C, -7A, and -8A contained 3-inch diameter metal pipe. All metal pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Six manholes (MH766 to MH771) were removed from Trench SU 268 between March 16, 2011, and March 21, 2011 (Table 9). Sufficient sediment for sample collection and analysis was found in MH766, MH768, and MH769 (Table 8). The analytical results for the sediment samples collected from MH766, MH768, and MH769 did not indicate the presence of radioactivity above the release criteria for any ROC. The sediment sample analytical reports are provided in Appendix M. The manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

7.5.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 275 remained in place following the completion of the removal action.

7.5.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). Final systematic samples were collected from 18 locations on April 13, 2011, and submitted to the HPNS on-site radiological laboratory for analysis.

The systematic sampling results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 275 Project Report* (Shaw, 2012ab; Appendix K), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 275 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels greater than the MDL; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Two of the 18 systematic samples were sent off site for total Sr as a surrogate for ^{90}Sr analysis. Both samples reported as below the MDL; therefore, no results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 275 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 275 were 0.040 pCi/g for ^{137}Cs , 0.118 pCi/g for ^{90}Sr , and 0.518 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.041 pCi/g for ^{137}Cs , 0.132 pCi/g for ^{90}Sr , and 0.434 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 275 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 275 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 6E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 275 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 275 Project Report* (Shaw, 2012ab; Appendix K).

No further action is required, and unrestricted release is recommended for Trench SU 275 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Radiologically-screened excavated soil and imported backfill material met the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 275 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 275 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 6E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 275 Project Report* (Shaw, 2012ab; Appendix K) was issued in September 2012.

7.5.4 Backfill Activities

ESUs 430, 453, and 456 were used in part to backfill Trench SU 275. Final data from ESUs 430, 453, and 456 were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data from the screening activities at ESUs 430, 453, and 456 are summarized in Tables 3-2 through 3-4 of the *Final Survey Unit 275 Project Report* (Shaw, 2012ab; Appendix K). The analytical data packages prepared by TestAmerica St. Louis for ESUs 430, 453, and 456 are presented in Appendix C of the *Final Survey Unit 275 Project Report*.

Approximately 160 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 275. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). As part of the GMP site restoration, a layer of 4-inch to 6-inch of crushed asphalt was placed on top of Trench SU 269 footprint.

8.0 Work Area 30

WA 30 is located at the northeastern end of Parcel D-1, consists of the whole South Pier (Figure 2). It is bounded on the northwest by WA 24, and north, east, and south by Parcel F and the Bay. The radiological work activities performed for WA 30 included Trench SUs 260 and 263. The following sections summarize the work activities completed in WA 30 to support the recommended radiological release for unrestricted use of the Parcel D-1 property.

8.1 Trench Survey Unit 260

Trench SU 260 included trench segments 06-D30-00-1A, -4A, and -5A and backfill soil. The location of Trench SU 260 is shown on Figure 5. The total excavated surface area was approximately 2,203 ft² (205 m²) with excavation depths varying between 2.5 and 6 feet bgs. Approximately 280 cy of material were excavated from Trench SU 260.

8.1.1 Removal Action Activities

Excavation of SU 260 commenced on October 19, 2010, at MH725, and removal of the pipe, manhole, and soil was completed on October 26, 2010. SD trench segment 06-D30-00-5A was not identified in the D-1 Sewer Design Plan (Shaw, 2010d), but was discovered running between MH721 and MH722. As measured in the field, 10 linear feet of trench segment 06-D30-00-5A was removed during excavation activities. A total of 28 truckloads (approximately 280 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for process.

Approximately 99 linear feet of pipe was removed from Trench SU 260 during excavation activities. Pipe was found in trench between 1.5 to 6 feet bgs. Trench segments 06-D3-00-1A, -4A, and -5A contained 4-inch diameter steel pipes. All pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Eleven manholes were associated with Trench SU 260 (MH715 to MH719 and MH721 to MH726) (Table 9). The manholes were removed between October 18 and October 21, 2010. An inadequate volume of sediment for sample collection and analysis was not available in the piping and manholes excavated from Trench SU 260. Consequently, there are no sediment sample analytical results associated with Trench SU 260. The manholes were surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

The original systematic sampling screening results for the project ROCs are summarized in Table 3-1 of the *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L), and

analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 260 Project Report*. None of the screening results reported ^{137}Cs levels greater than the MDA; therefore, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). Twelve of 18 systematic samples reported ^{226}Ra levels greater than the MDA with one sample (06-PD1-SP-260-016) exceeding the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 systematic samples were analyzed off site for total Sr as a surrogate for ^{90}Sr . None of the samples reported results above their respective MDLs; therefore, none of the results exceeded the project release criterion for ^{90}Sr (0.331 pCi/g).

Gamma scanning measurements were collected from 100 percent of accessible surfaces within the SU 260 excavation using a 2-inch by 2-inch NaI gamma scintillation detector coupled with a Ludlum 2221 ratemeter/scaler and Trimble GPS/data logger. Following data collection, scanning data were reviewed for completeness and to identify any elevated areas. Four locations were selected to further investigate potentially anomalous measurements (discussed further in Appendix B) by biased static measurements and sampling. Four additional biased samples (06-PD1T-260-019 through 06-PD1T-260-022) were collected, and all screening results were below project release criteria as shown in Table 3-2 of the *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L). A summary of gamma scanning data is presented in Appendix B of the *Final Survey Unit 260 Project Report*.

Remedial activities were performed over an approximate 125 ft² area that encompassed the area represented by sample 06-PD1-SP-260-016. Soil was removed to a depth of 0.5 foot below the trench surface, resulting in the removal of approximately 2.3 cy of material that was transferred to the Navy's LLRW contractor for disposition. Five post-remediation samples (06-PD1T-260-023 to 06-PD1T-260-027) were collected at the original location of sample 06-PD1-SP-260-016 and the four corners of the remediated area, and all results were below project release criteria as shown in Table 3-3 of the *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L). Five post-remediation static gamma measurements were collected at the original sample location and at four locations along the corners of the additional excavation, and all results were below project investigation levels (Appendix B of the *Final Survey Unit 260 Project Report*).

8.1.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 260 remained in place following the completion of the removal action.

8.1.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate “as-built” drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010). The final systematic sampling results for the project ROCs are summarized in Table 3-4 of the *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L). One of the 18 final systematic samples reported ^{137}Cs levels greater than the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Three of the 18 final systematic samples were analyzed off site for total Sr as surrogate for ^{90}Sr . None of the results for total Sr exceeded the MDL; therefore, no results exceeded the project release criteria for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 260 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 260 were 0.042 pCi/g for ^{137}Cs , 0.137 pCi/g for ^{90}Sr , and 0.521 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.040 pCi/g for ^{137}Cs , 0.151 pCi/g for ^{90}Sr , and 0.601 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at SU 260 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L).

No further action is required, and unrestricted release is recommended for Trench SU 260 for the following reasons:

- All analytical results from final systematic samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.

- Analytical results from the radiologically-screened excavated soil and imported backfill material were below project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 260 resulted in a maximum above-background dose of 0.1 mrem/yr and an ELCR of 1E-06. The model of Trench SU resulted in a maximum above-background dose of 0.2 mrem/yr and an ELCR of 3E-06. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 260 Project Report* (Shaw, 2012m; Appendix L) was issued in September 2012.

8.1.4 Backfill Activities

Approximately 280 cy of imported fill material from the Jericho import fill source was used to backfill Trench SU 260. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were laid on top of Trench SU 260 footprint as part of South Pier site restoration.

8.2 Trench Survey Unit 263

Trench SU 263 included trench segments 06-D30-00-6A, 06-D30-00-6B, 06-D30-00-6C, 06-D30-00-2A, 06-D30-00-2B, 06-D30-00-2C, 06-D30-00-2D, and 06-D30-00-3A and a volume of Navy-approved excavated and imported soil used for backfill. The location of Trench SU 263 is shown on Figure 5. Trench SU 263 consists of several trenches and excavations on South Pier in Parcel D-1. The combined excavation footprints comprising Trench Unit 263 were approximately 750 feet in length (229 meters). The total excavated surface area was approximately 5,889 ft² (547 m²) with excavation depths varying between 1.5 and 5 feet bgs. Approximately 230 cy of material were excavated from Trench SU 263.

8.2.1 Removal Action Activities

Excavation of Trench SU 263 commenced on October 22, 2010, at trench segment 06-D30-00-2A, and removal of the pipe, manhole, and soil was completed on January 18, 2011. SD trench segment 06-D30-00-6A, -6B, and -6C were not identified in the D-1 Sewer Design Plan (Shaw, 2010d). As measured in the field, 625, 52, and 56 linear feet of trench segments 06-D30-00-6A, -6B, and -6C were removed during excavation activities, respectively. A total of 23 truckloads (approximately 230 cy) of overburden soil and peripheral material were excavated and transferred to the Basewide Radiological Contractor's RSY2 for process.

Approximately 928 linear feet of pipe was removed from Trench SU 263. Pipe was found in trench between 0.5 to 4 feet bgs. SS trench segments 06-D30-00-6A contained 4-inch PVC pipe. SS trench segments 06-D30-00-6B and -6C contained 4-inch diameter metal pipes. SD trench segments 06-D30-00-2A, -2B, -2C, -2D, and -3A contain 1.5-inch to 4-inch metal pipes. All pipe sections were excavated out and placed on plastic sheeting pending further investigation. Following radiological screening, the pipe sections were subsequently placed in LLRW bins for disposal by the Navy's LLRW contractor.

Four manholes were excavated and removed from Trench SU 263 (MH720, MH734, MH740, and MH741). Manhole MH720 was removed on January 6, 2011, and the remaining three manholes (MH734, MH740, and MH741) were removed on January 18, 2011. An inadequate volume of sediment for sample collection and analysis was not available in the piping and manholes excavated from Trench SU 263. Consequently, there are no sediment sample analytical results associated with Trench SU 263. All four manholes were radiologically surveyed and released for disposal as general concrete debris by the Navy T&D contractor (Table 9).

8.2.2 Piping Remaining in Place

No known SD or SS piping associated with Trench SU 263 remained in place following the completion of the removal action.

8.2.3 Final Status Survey Summary

Following excavation, topographic surveys were performed to generate "as-built" drawings of the trenches that were used as the basis for the sampling design created with *Visual Sample Plan, Version 6.0* (PNNL, 2010).

The final systematic sampling results are summarized for the project ROCs in Table 3-1 of the *Final Survey Unit 263 Project Report* (Shaw, 2012p; Appendix L), and analytical data packages received from the on-site and off-site laboratories are presented in Appendix A of the *Final Survey Unit 263 Project Report*. One of the 18 systematic samples reported ^{137}Cs levels equal to the MDL; however, no results exceeded the project release criterion for ^{137}Cs (0.113 pCi/g). All 18 systematic samples reported ^{226}Ra levels greater than the MDL; however, no results exceeded the project release criterion for ^{226}Ra (1.485 pCi/g).

Four of the 18 systematic samples were analyzed to the off-site laboratory for total Sr as a surrogate for ^{90}Sr ; one sample reported total Sr levels equal to the MDL; however, the result did not exceed the project release criterion for ^{90}Sr (0.331 pCi/g).

For the FSS, Trench SU 263 was defined as the sum of the trench unit and the backfill material composed of a volume of imported fill. As directed by the Navy and based on discussions with

the DTSC and CDPH, input parameters using the larger of the MDL or reported activity were applied for the dose modeling efforts. The average net residual radioactivity concentrations for material used as backfill in Trench SU 263 were 0.045 pCi/g for ^{137}Cs , 0.185 pCi/g for ^{90}Sr , and 0.447 pCi/g for ^{226}Ra . The trench unit average net residual radioactivity concentrations were 0.044 pCi/g for ^{137}Cs , 0.173 pCi/g for ^{90}Sr , and 0.730 pCi/g for ^{226}Ra . The activity used to model each radionuclide was based on the isotopic net concentration.

The model of the backfill material used at Trench SU 263 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 263 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. These results meet the project dose and risk criteria and as such, no additional dose modeling was required. The RESRAD (ANL, 2009) output files for the two Trench SU 263 dose calculations are presented in Appendix D and are summarized in Table 6-2 of the *Final Survey Unit 263 Project Report* (Shaw, 2012p; Appendix L).

No further action is required, and unrestricted release is recommended for Trench SU 263 for the following reasons:

- All analytical results from systematic and biased samples collected from the trench were below project release criteria.
- Gamma scanning was performed on 100 percent of accessible surfaces within the trench, and no discrete sources were found. All potential scanning anomalies were investigated and found to represent variability in background.
- Analytical results from the radiologically-screened excavated soil and imported backfill material were below the project release criteria.
- Qualitative ALARA criteria described in the SUPRA SSSD (TtEC, 2011b) have been met.
- The model of the backfill material used at Trench SU 263 resulted in a maximum above-background dose of 0.4 mrem/yr and an ELCR of 5E-06. The model of Trench SU 263 resulted in a maximum above-background dose of 1.8 mrem/yr and an ELCR of 3E-05. Dose and risk modeling demonstrated that the residual dose and risk under a conservative exposure scenario are below the project dose limit of 15 mrem/yr and ELCR of 3E-04.

The *Final Survey Unit 263 Project Report* (Shaw, 2012p; Appendix L) was issued in September 2012.

8.2.4 Backfill Activities

Excavated soil from ESU 374 (160 cy) was used in part to backfill Trench SU 263. The analytical data from soil clearance activities at ESU 374 are presented below in Table 3-2 of the

Final Survey Unit 263 Project Report (Shaw, 2012p; Appendix L). Final data from the ESUs were provided by TestAmerica St. Louis, per the SUPRA SSSD (TtEC, 2011b). The analytical data package provided by TestAmerica St. Louis for ESU 374 is presented in Appendix C of the *Final Survey Unit 263 Project Report*.

Approximately 70 cy of imported fill material from the Jericho import fill source was also used to backfill Trench SU 263. Import fill sample information is presented in the SUPRA SSSD (TtEC, 2011b). In addition, 4 to 6 inches of crushed asphalt were laid on top of Trench SU 263 footprint as part of South Pier site restoration. Further discussions on the site restoration effort can be found in Section 9.0.

8.3 South Pier

The following sections summarize the radiological work performed for the South Pier, provide an abbreviated history, identify the FSS results, and discuss regulatory concurrence for unrestricted radiological release. The *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L) details the radiological survey activities. The location of the GMP is shown on Figures 2 and 5.

8.3.1 Description and Background

The South Pier Area (South Pier) is located to the north of GMP in WA 30 within Parcel D-1 (Figure 2). South Pier is located south of North Pier, which is part of Parcel C at HPNS. The HRA (NAVSEA, 2004) did not specifically identify the South Pier as a separate radiologically impacted area; however, the land portions of the berths associated with South Pier (Berths 10 through 13) are considered radiologically impacted. Release of SD and SSs associated with South Pier was addressed in the separate SUPRs for Trench SUs 260 and 263 (Shaw, 2012m and 2012p; Appendix L).

South Pier is approximately 120 feet wide by 1,000 feet long (Figure 2). At project startup, Building 311 was the only building on South Pier. The building was a wood-framed, two-story building that was approximately 100 feet long and 40 feet wide, and was not radiologically impacted. Building 311 was demolished as part of the scope of work. South Pier is constructed of concrete-reinforced wood cofferdams that were floated into place and filled with rock and dredge spoils. Remaining structures present on South Pier include the Building 311 foundation, the outer pier wall and utility access hoods, a subgrade utility pipe chase, and miscellaneous electrical service pad or vaults (all constructed of concrete). The land portions of Berths 10 through 13 (considered to be the 50 feet of land adjacent to water's edge) were addressed by this work.

The HRA (NAVSEA, 2004) has limited information specifically about South Pier. The HRA noted that Building 311 was used as a latrine, site superintendent's office, and administration

building as early as 1945. Construction dates for South Pier or Building 311 are not available. No historical radiological activities are known to have occurred in Building 311.

Berths 10 through 13 were identified as potentially radiologically impacted in the HRA in the discussion of Parcel F. Radiological impacts to the berths may have resulted from berthing of Operations Crossroads ships, berthing of the YGN-73 (LLRW disposal barge), and usage by the NRDL (berthing of experimental barges and YAGs-39 and -40).

Preparation of the South Pier for FSS included the demolition of Building 311, the removal of surface covering asphalt, the removal of the crane and train steel rails, the removal of the wood rail ties, and the removal of the SD/SS lines. Demolition of Building 311 included the pre-demolition performance of lead-based paint and asbestos abatement following pre-existing building characterization survey data. The material removed during abatement of the building surfaces were dispositioned as nonmixed waste as the building structures were not characterized as radiologically impacted. The building material generated from the structural demolition was disposed of as demolition debris.

The removed asphalt from each designated SU was separately staged in a lay down area adjacent to the South Pier pending the review of the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L) ground survey and sampling data. Following the review of the ground surface FSS survey and sampling data, the removed asphalt (4,399 tons) from the South Pier was crushed and reused as ground cover on the South Pier (Section 9.2 of the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California*).

The removed steel crane and train rails were also staged in a lay down area adjacent to the South Pier. All steel crane and train rails were surveyed. All accessible surfaces of the steel crane and train rails were surveyed for fixed and removable surface contamination. No measurements exceeding the project surface contamination criteria were identified (Table 2).

The wood rail ties were initially removed and prepared for disposition as LLRW. Following additional post-removal reviews in coordination with the Navy, the wood rail ties were staged adjacent to the South Pier pending future release surveys.

The final ROCs for South Pier are ^{137}Cs , plutonium-239 (^{239}Pu), ^{226}Ra , and ^{90}Sr . Table 2-1 of the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L) lists the ROCs with the corresponding half-lives and principal types of radiation.

8.3.2 Final Status Survey Summary

South Pier was prepared for survey in late 2010 and the debris was radiologically surveyed and cleared as appropriate. The site was partitioned into 12 Class 1 SUs and a Class 2 SU with an area extending out as a 15 ft buffer zone on the landward side of the pier. A 100 percent scan for gamma emitters was performed in the Class 1 SU, and a 50 percent scan for gamma emitters was performed in the Class 2 SU to identify small areas of elevated activity; none were found. A minimum of 20 systematic samples were collected from each SU and analyzed at the on-site (initial screening) and off-site (final results) laboratories. Limited soil remediation was required in 7 of the original 13 South Pier SU due to elevated ^{137}Cs or ^{226}Ra results. An additional Class 2 buffer SU was established to further bound pier soil. Remediations were performed on South Pier until all FSS samples were below the project release criteria.

Surveys for fixed and removable surface contamination were performed on all remaining South Pier concrete infrastructure, including the pier walls; utility hoods; electrical pads, vaults, and corridors; and other miscellaneous items. The utility corridor surveys for Utility Corridor SEC01 were performed following a WV (WV#6) to the *Final, Final Task-Specific Plan Addendum, South Pier Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California* (Shaw, 2012a), due to the presence of deteriorate ACM within the corridor. A total of 32 concrete pads and vaults, 39 utility hoods, 9 pier wall segments, and the South Pier utility corridor were surveyed and no measurements exceeding the project surface contamination criteria were identified.

Surveys on South Pier were completed in October 2012.

The scoping survey was designed to meet the data quality requirements of an FSS. Since there were no small areas of elevated activity requiring remediation identified in the final round of sampling, the scoping and characterization survey results were utilized in place of an FSS.

No further action is required and unrestricted release is recommended for South Pier based on the following reasons:

- All analytical results for ^{226}Ra , ^{137}Cs , and total Sr from final systematic samples collected from the South Pier and buffer area were below project release criteria.
- Impacted soil areas with elevated sampling results were sufficiently bounded and remediated, as demonstrated in the *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L).
- Gamma scanning was performed on 100 percent of South Pier SUs and discrete sources were not found. All potential scanning anomalies were investigated and found to represent variability in background.

- Surface contamination surveys were performed on all remaining South Pier infrastructure and all survey results were below project surface contamination criteria.
- Qualitative ALARA criteria were met.
- Dose and risk modeling performed for the South Pier SUs resulted in a maximum above-background dose of 2.879 mrem/yr and ELCR of 4.427E-05, from SU SP05. This dose and risk modeling demonstrated that the residual dose and risk, under a conservative exposure scenario, were well below the project dose limit of 15 mrem/yr and ELCR of 3E-04 and therefore meet project requirements for unrestricted release.

8.3.3 Regulatory Concurrence

The *Final, Final Status Survey Report, South Pier Area, Hunters Point Naval Shipyard, San Francisco, California* (Shaw E&I, 2013a; Appendix L) was submitted to the regulatory agencies in June 2013. Concurrence by the regulatory agencies for radiological release for unrestricted use of the South Pier is pending.

9.0 *Site Restoration and Post-Construction Activities*

This section describes the site restoration and post-construction activities at Parcel D-1. Site restoration consisted primarily of backfilling trenches with earthen fills, compacting and matching of grades, and placement of crushed asphalt. Additional restoration included swale construction and general demobilization activities.

9.1 *Backfilling and Compacting*

The excavation trenches were backfilled when the results of the surveys and sampling confirmed that contamination above the release criteria was removed and concurrence from RASO was obtained. Trenches were backfilled with soil materials from one of the following two sources:

- Soil screened and cleared by the Basewide Radiological Contractor on their RSY pads and subsequently meeting radiological release criteria. The soil was accepted upon receipt of written RASO approval. The majority of backfill consisted of this soil.
- Approved on-base import fill from the stockpile located southeast of Building 600 in Parcel E. This pre-approved “Jericho” soil was dedicated for use as SD and SS trench backfill.

Only soil that met the criteria specified in the SAP was reused as backfill material. Soil that did not meet the specified criteria was disposed of by the Navy T&D contractor. Soil that was excavated during SD and SS removals and accepted for reuse by RASO was used as backfill in the same general area of Parcel D-1 from which it was excavated. Cleared soil excavated from a trench run located within an IR site was returned to a trench within the same IR site.

Backfill and compaction requirements were performed consistent with the specification provided in the D-1 Sewer Design Plan (Shaw, 2010d). Backfill was placed to the piping and grades as specified in the D-1 Sewer Design Plan to assure surface drainage. A final topographic survey was not performed upon backfill placement due to additional post-remediation activities to be performed, including final placement of crushed asphalt and eventually a durable cover under a separate Navy contract. When possible, trenches were backfilled to the original grade noted prior to excavation. Areas where a new drainage swale was installed were backfilled to the level indicated in the associated Design Drawings (Shaw, 2010f and 2010g) (Section 9.3).

9.2 *Asphalt Placement*

The final step of site restoration was placement of asphalt that was removed during the removal action, radiologically cleared, and crushed. Upon removal and survey the asphalt was crushed on site making it suitable for reuse (WV #4). Approximately 290 tons (approximately 176 cy) of asphalt originating from GMP SU 26 was disposed of as LLRW. The residual volume

(approximately 25,856 tons; 15,670 cy) was crushed on site. The asphalt was then placed on South Pier and GMP and rolled to an approximate final thickness of 4 inches. Asphalt was placed and rolled up to the edge of remaining concrete pads and utility corridors not to cover pier features.

9.3 Temporary Swale Construction

In most areas of the sections of Parcel D-1 addressed during this removal action, post-backfill site restoration, in addition to asphalt placement, was limited to installing surface drainage swales to direct overland stormwater runoff to outfalls along the Bay shoreline, consistent with recent or planned grading along the boundary with Parcel G (Figure 6). No SD or SS piping was replaced.

Temporary stormwater swales capable of handling a two year return period storm were installed by grading (Appendix C). The swale system was installed to handle rainfall that enters portions of Parcel D-1 that drains towards the outfall at Berth 15, as well as runoff from HPNS Parcel G. The stormwater swale tied into remaining SD lines, the Bay SD outfalls, and other stormwater swales constructed by other contractors in Parcel G. The outfall structures themselves were not modified. Sediments and erosion controls were installed using BMPs as stated in SWPPP in the D-1 Execution Plan (Shaw, 2010a).

9.4 Demobilization

Once site restoration of Parcel D-1 was complete, demobilization activities were initiated. Demobilization included the radiological release surveys of construction equipment and materials, cleaning of the project site, performance of a final radiological surface survey of disturbed areas, and issuing a completion inspection checklist (Appendix E).

Prior to removing equipment and materials from Parcel D-1, radiological release surveys were completed. Radiological surveys consisting of a 100 percent scan of accessible areas for alpha/beta contamination were conducted. Radioactive contamination above the established criteria, defined in Table 2, was not detected within the work area during the work process or on any of the equipment and materials evaluated during the removal of equipment or materials from this area. Decontamination for radioactive contamination was therefore not required.

Demobilization at Parcel D-1 also included site cleaning activities. Site cleaning consisted of repairing erosion or runoff-related damage; grading areas used for construction, and removing excess construction material, wood, debris, and other foreign material from the site. Remaining trash, wood, and debris were collected and segregated by type for proper off-site disposal.

Following the removal of trash and debris, the ground surface within unexcavated areas at Parcel D-1, including lay down areas, was surveyed for gamma-emitting radionuclides. Data

obtained from the pre-mobilization initial radiological surface scan survey and the demobilization scan survey were compared with the instrument-specific investigation levels to ensure that radioactive materials were not relocated or additional radioactive contamination had not been introduced to the site. The evaluation of scan survey data satisfactory established that radioactive materials or contamination were not relocated or introduced during the work area excavation activities.

Demobilization was completed on December 3, 2012.

9.5 Work Variances

To provide for safer conduct in the field, improve production, and meet the unexpected changes in site conditions, the WV process was used to address unforeseen circumstances during the field implementation of this radiological removal action. A WV is used to document a change to the “as designed condition” and request or suggest a solution. The WV process requires that requested changes to the project design specifications or plans be reviewed and approved by multiple Shaw E&I technical specialists and the Navy prior to implementation. During this radiological removal action, a total of six WV documents were prepared. WVs relating to radiological materials and protocols were pre-approved by the Navy and RASO before implementation. Copies of the WVs are provided in Appendix D.

9.6 Completion Inspections

Completion inspections were performed as summarized in this section. Appendix E contains documentation for the completion inspections performed at the Parcel D-1 areas that fall under this radiological removal action.

9.6.1 Pre-Final Inspection

A pre-final inspection was performed by the ROICC and CSO on November 13, 2012. The Shaw Project Quality Control Manager (PQCM), Construction Manager, Project Manager, RCS, and Field Engineer were also present during the scheduled inspection. The pre-final inspection included a site visit at which time the work completed under the CTO was reviewed. At the pre-final inspection, the ROICC developed a punch list of incomplete work items requiring completion under the project contract and provided the list to the PQCM. Punch list items identified by the ROICC included the following:

- Removing remaining support items (i.e., fence panels)
- Removing a half-buried cable from the area
- Painting protruding rebar a bright color
- Providing a barrier around the “sandy” area

- Cutting and removing a metal strap protruding from the ground
- Relocating remaining tires in WA 24 to the Parcel G staging pile
- Identifying and properly managing a 55-gallon drum located in WA 24

Appendix E contains the pre-final inspection punch list documentation developed by the ROICC during the inspection.

9.6.2 Final Inspection

The purpose of the final acceptance inspection was to verify that specific items previously identified as incomplete or unacceptable during the pre-final inspection were completed and acceptable. The final acceptance inspection included verification by the PQCM that punch list items identified during the pre-final acceptance inspection were completed as discussed. Punch list items from the pre-final inspection included removing remaining support items, ensuring site trip hazards were removed or well marked, and managing remaining waste items. These punch list items were verified as complete and acceptable by the PQCM on November 20, 2012. Appendix E contains final acceptance inspection documentation.

9.7 Photographic Log

The work performed during the Parcel D-1 radiological activities was documented using a photographic record. Photographs of typical operations, processes, and procedures during the Parcel D-1 radiological fieldwork are provided in Appendix F.

10.0 Community Relations

This section describes information provided to the public and public participation with regards to this project.

10.1 Public Information

The remediation process was conducted in accordance with the *Final Community Involvement Plan, Hunters Point Shipyard, San Francisco, California* (Navy, 2011) prepared for HPNS to facilitate public involvement in the decision-making process. The AM (Navy, 2006), planning documents, this Radiological RACR, and other documentation associated with remediation activities at HPNS are contained in the Environmental Restoration Program Record File for the site. The Environmental Restoration Program Record File index is maintained by Naval Facilities Engineering Command Southwest. The Navy, as lead agency with state agency concurrence, has overall responsibility for public participation activities. As such, the planning documents, this Radiological RACR, and other information concerning Parcel D-1 are also available to the public at the Information Repository. The public Information Repository where the public can review any of the documents associated with the Environmental Restoration Program Record File are:

| | |
|--|---|
| HPNS Site Office Trailer (Across the street from the security entrance to the Shipyard) 690 Hudson Avenue San Francisco, California 94124 | City of San Francisco Main Library, Government Information Center, 5 th Floor 100 Larkin Street San Francisco, California 94102 415.557.4500 |
|--|---|

10.2 Public Participation

To encourage local participation in the hazardous waste cleanup program at HPNS, the Navy hosts community meetings. The meetings include presentations of on-going cleanup work at HPNS to inform the public.

The Navy hosted one meeting at the Bayview YMCA to present and discuss the HPNS Parcel D-1 Radiological Remediation and Support activities.

- Community Technical Meeting—Radiological Remediation and Support, September 16, 2010

11.0 Removal Action Costs

This section provides a summary of the estimated costs incurred in performing the radiological survey and remediation at Parcel D-1 as reported in this Radiological RACR. The cost of this removal action is approximate due to other Navy contractors performing portions of the removal action activities, such as radiological soil processing, radiological sample analysis, and off-site T&D.

| Radiological Removal Action Costs | |
|--|------------------------|
| Activity | Cost |
| Nonconstruction | |
| Project Management and Meetings | \$1,576,100 |
| Planning Documents | \$415,700 |
| Radiological RACR, SUPRs, and FSS Reports | \$244,600 |
| <i>Subtotal Nonconstruction Costs</i> | <i>\$2,236,400</i> |
| Construction ¹ | |
| Project Infrastructure and Site Management | \$3,108,800 |
| Mobilization/Site Preparation | \$327,600 |
| Demolition of Buildings | \$352,800 |
| Radiological Surveys of GMP; South Pier; Building 274; Former Building 313, 313A, and 322 Sites; and Building 383 Area | \$3,204,300 |
| SD and SS Removal | \$1,641,300 |
| Air Monitoring | \$248,700 |
| T&D of Waste (LLRW) | \$154,000 ² |
| Site Restoration | \$924,100 |
| Housekeeping and Demobilization | \$72,100 |
| <i>Subtotal Construction Costs</i> | <i>\$10,033,700</i> |
| Estimated Total Costs | \$12,270,100 |

Notes:

¹ Not including costs associated with on-site or off-site analytical tests performed by the Basewide Radiological Contractor.

² Not including LLRW and non-LLRW processed by the Basewide Radiological Contractor and the non-LLRW Navy T&D Contractor to avoid double-counting of waste costs reported in other Radiological RACRs and/or reports.

12.0 *Conclusions and Recommendations*

Conclusions and recommendations of this Radiological RACR are discussed in the following subsections.

12.1 *Radiologically Impacted Buildings/Structures and Former Building Sites*

Radiological surveys of buildings and ground surfaces were performed in accordance the D-1 Radiological Work Plan (Shaw, 2010b). Parcel D-1 WA boundaries, impacted building, impacted building area, and the former building sites are shown on Figure 2. Radiological surveys were performed at the following sites:

- Building 274
- Building 383 Area footprint
- Former Building 313, 313A, and 322 Sites
- GMP
- South Pier

The purpose of the radiological surveys and removals was to achieve free-release of the radiologically impacted sites. Procedures for radiological surveys were performed in accordance with the D-1 Radiological Work Plan (Shaw, 2010b). FSSs were performed by Shaw E&I consistent with MARSSIM (DoD, et al, 2000). Results of the FSSs are summarized in Sections 4.0, 6.0, and 8.0, and the FSS reports are indexed in Appendices H, J, and L of this Radiological RACR.

Following radiological surveys and remediation, modeling was performed for each of the five impacted sites to calculate the residual doses to the critical group. The results of models each met the project dose and risk criteria of a 15 mrem/yr limit and an ELCR for less than 3E-04.

No evidence of residual radioactivity above the release criteria was found to be present at Building 274 and the Building 383 Area footprint. Sampling results above the project release criteria were observed for portions of the Former Building 313, 313A, and 322 Site, the GMP, and the South Pier. All areas were remediated, and all final sample results were either below the project release criteria or met project dose and risk limits. Based on the survey results and modeling efforts, the sites were recommended for unrestricted radiological release. The work objective to achieve unrestricted free-release of all areas and features identified within Parcel D-1 as radiologically impacted by the HRA and CTO 0006 was met.

12.2 Storm Drain and Sanitary Sewer Systems Removal

Removal of the SD and SS system was performed to achieve free-release of the specific areas address under this Parcel D-1 radiological removal action. Excavation of the SD and SS system commenced on October 8, 2010. Thirty-four trenches were excavated and a total of 12,957 linear feet of piping and 86 manholes pipes were removed during the removal activities at Parcel D-1. Although not identified on the Design Drawings (Shaw, 2010f and 2010g), an additional 3,114 linear feet of SD and SS piping and 15 manholes were discovered during the excavation activities and removed in accordance with the D-1 Sewer Work Plan (Shaw, 2010c). Soil excavated from the trenches was transferred to the Navy's Basewide Radiological Contractor for processing. Approximately 18,320 cy of soil was excavated, transferred, and processed.

The Parcel D-1 SD and SS pipes and manholes (collectively called piping) were removed during excavation of the trenches. The majority of the piping was crushed or disintegrated during the removal activities and the debris was transferred along with the surrounding soil to the RSYs for radiological processing. SD and SS piping that was not crushed or crumbled during excavation activities were placed on plastic sheeting pending further investigation and sampling. In total, 86 manholes and 12,957 linear feet of pipe were removed and staged during the Parcel D-1 removal activities. Radiological surveys were performed on the piping and if present, sediments were sampled for ROCs. Piping with elevated radioactivity were segregated and disposed as LLRW.

Following excavation, an FSS was performed in each trench. As part of the FSS, dose and risk modeling was performed for each of the 34 trench SUs. For dose and risk modeling efforts, SD and SS systems trench SUs were composed of two different types: trenches and backfill material. The results of the modeling efforts for each of the 34 designated trench SUs in Parcel D-1 fall within the acceptable NCP risk management range of $10\text{E-}6$ to $10\text{E-}4$, which supports radiological free-release. Based on the dose and risk modeling results, the highest net dose to workers or members of the public as a result of exposures to residual radioactive material in soil on Parcel D-1 was identified in Trench SU 263 at 1.733 mrem/yr with an ELCR of $2.8\text{E-}05$.

The excavated trenches were backfilled when the results of the surveys and sampling confirmed that contamination above the release criteria was removed and concurrence from RASO was obtained. Trenches were backfilled with soil materials from one of the following two sources:

- Soil screened and cleared by the Basewide Radiological Contractor on their RSY pads and subsequently meeting radiological release criteria. The soil was accepted upon receipt of written RASO approval. The majority of backfill consisted of this soil.
- Approved on-base import fill from the stockpile located southeast of Building 600 in Parcel E. This pre-approved "Jericho" soil was dedicated for use as SD and SS trench backfill.

Backfill and compaction requirements were performed consistent with the specification provided in the D-1 Sewer Design Plan (Shaw, 2010d). Backfill was placed to the piping and grades as specified in the D-1 Sewer Design Plan to assure surface drainage. A final topographic survey was not performed. When possible, trenches were backfilled to the original grade noted prior to excavation.

In most areas of the sections of Parcel D-1 addressed during this removal action, post-backfill site restoration (in addition to reused crushed asphalt placement) was limited to installing surface drainage swales to direct overland stormwater runoff to outfalls along the Bay shoreline, consistent with recent or planned grading along the boundary with Parcel G. Areas where a new drainage swale was installed were backfilled to the level indicated in the associated Design Drawings (Shaw, 2010f and 2010g). No SD or SS piping was replaced. Temporary stormwater swales capable of handling a two year return period storm were installed by grading (Appendix C). The swale system was installed to handle rainfall that enters portions of Parcel D-1 that drains towards the outfall at Berth 15, as well as runoff from HPNS Parcel G. The stormwater swale tied into remaining SD lines, the Bay SD outfalls, and other stormwater swales constructed by other contractors in Parcel G. The outfall structures themselves were not modified. Sediments and erosion controls were installed using BMPs as stated in SWPPP (Shaw, 2010a).

In conclusion, the entire SD and SS system was removed from the Parcel D-1 areas addressed during this removal action (Figure 2). Dose and risk modeling results for each of the 34 trench SUs are within the acceptable NCP risk management range of $10E-6$ to $10E-4$, which supports radiological free-release. Based on the survey results and modeling efforts, the SD and SS system was recommended for unrestricted radiological release. The work objective to achieve unrestricted free-release of all areas and features identified within areas of this Parcel D-1 removal action, as radiologically impacted by the HRA and CTO 0006, was met.

12.3 Recommendations

Process radiological free-release for the following areas and sites included in the Parcel D-1 Phase 1 removal activities:

- Building 274
- Building 383 Area footprint
- Former Building 313, 313A, and 322 Sites
- GMP
- South Pier

- SD and SS system in WAs 24, 25, 28, 29, and 30 and portion of SD and SS system in WA 25

Conduct radiological free-release surveys for remaining areas within Parcel D-1 including the NRDL site, remaining adjoining berths, SD and SS systems in WA 13, and remaining SD and SS system in WA 25 (Phase 2).

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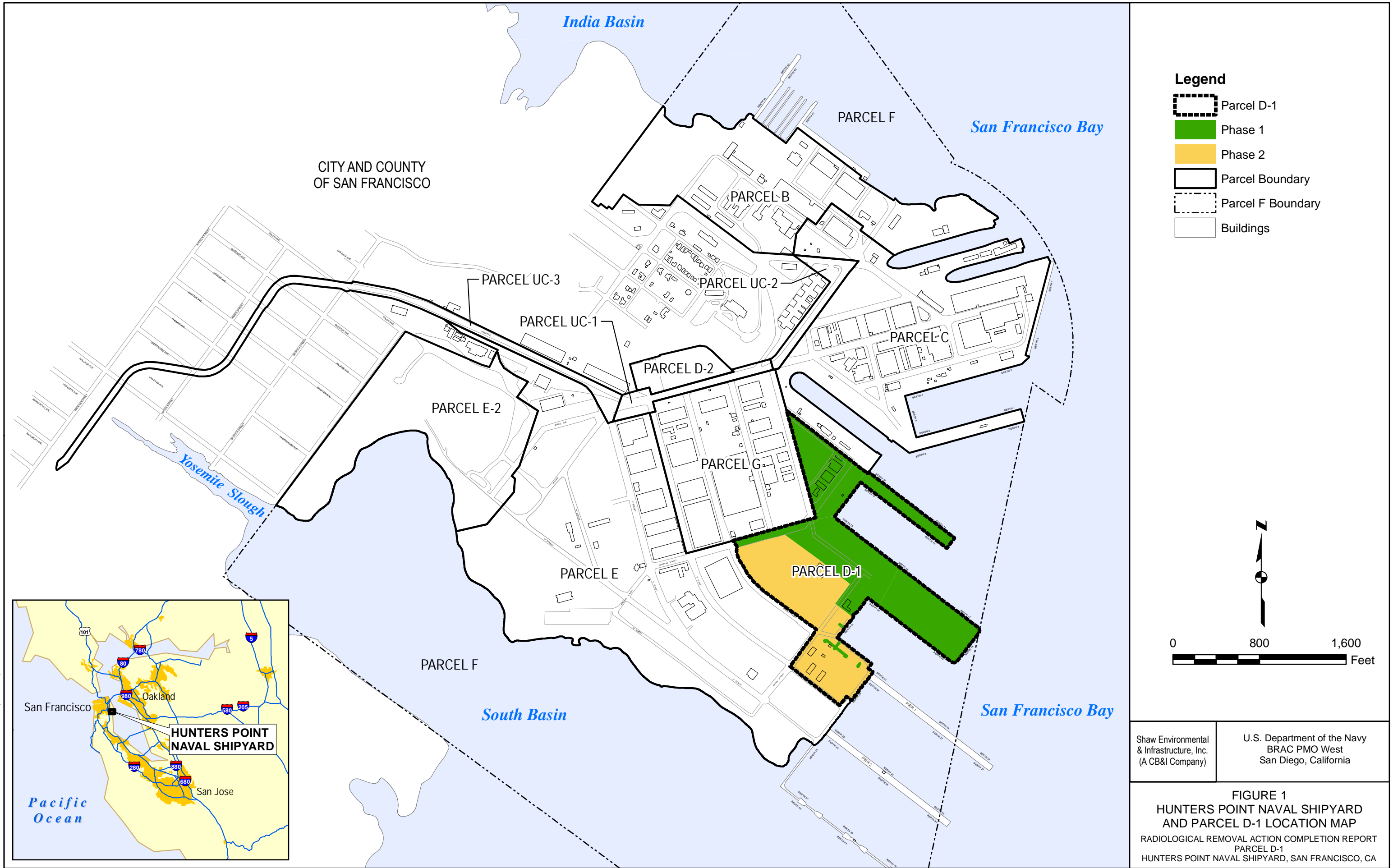
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Figures



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 Actual Work
 Remaining Work
 Critical Remaining Work
 Milestone
 Summary

CTO 06 Parcel D-1 Radiological Remediation and Support

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Activity Name

Duration

Start

Finish

2009

2010

2011

2012

2013

2014

Survey Unit Report (Package #105)

Survey Unit Report (Package #104)

Survey Unit Report (Package #106)

Survey Unit Report (Package #107)

Respond to Regulatory Comments and Issue Final Survey Unit Project Reports

Survey Unit Report (Package #101) received comments 04/05/12

Survey Unit Report (Package #102) received comments 04/09/12

Survey Unit Report (Package #103) received comments 04/25/12

Survey Unit Report (Package #104) received comments 06/08/12

Survey Unit Report (Package #105) received comments 05/21/12

Survey Unit Report (Package #106) received comments 06/08/12

Survey Unit Report (Package #107) received comments 12/03/12

Internal Draft Final Status Survey Reports

Final Status Survey Report Building 274

Final Status Survey Report Buildings Sites 313, 313A, and 322

Navy Review of Internal Draft Final Status Survey Reports

Final Status Survey Report Building 274

Final Status Survey Report Buildings Sites 313, 313A, and 322

Respond to Navy Comments and Issue Revised Draft Final Status Survey Report

Final Status Survey Report Building 274

Final Status Survey Report Buildings Sites 313, 313A, and 322

Regulatory Review of Final Status Survey Report

Final Status Survey Report Building 274

Final Status Survey Report Buildings Sites 313, 313A, and 322

Respond to Regulatory Comments and Issue Final Final Status Survey Reports

Final Status Survey Report Building 274

Final Status Survey Report Buildings Sites 313, 313A, and 322

CTO 06 Parcel D-1 Radiological Remediation and Support (New Work)

Project Milestones

Project Milestones

Awarded Project Period of Performance (POP)

Project Duration

Proposed Project Schedule Impacts/Extension (New Work)

Proposed Project Schedule Impacts/Extension (New Work)

Concrete Foundations Field Work

Concrete Structures Field Work

Completion Reports / Period of Performance Extension

Work Element 1- Project Management

Project Management and Support

Project Management NOC Additional Concrete Removal

Project Management NOC Building Foundations Removal - Gun Mole and South Piers

Project Closeout

Project Closeout CTO 06

Work Element 2 - Project Meetings

Project Meetings

Project Meetings Extension

Work Element 3 - Project Infrastructure Support

Site Cleanup and Demobilization

Demobilization - Concrete Work

Actual Work

Remaining Work

Critical Remaining Work

Milestone

Summary

CTO 6 EMAC II Project Schedule

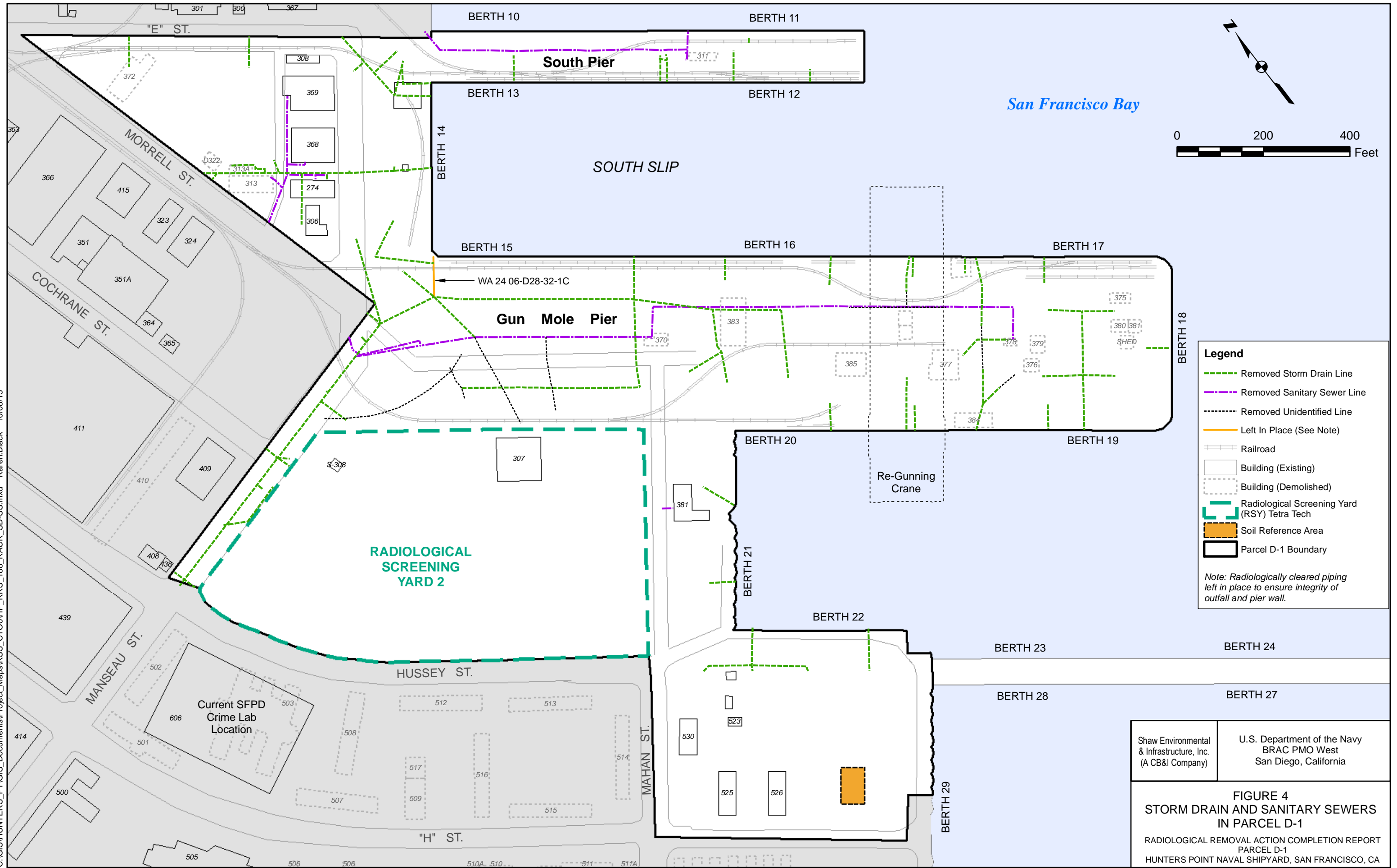
Parcel D-1 Radiological Remediation and Support, Hunters Point Naval Shipyard (HPNS), San Francisco, CA

Figure 3-Project Schedule

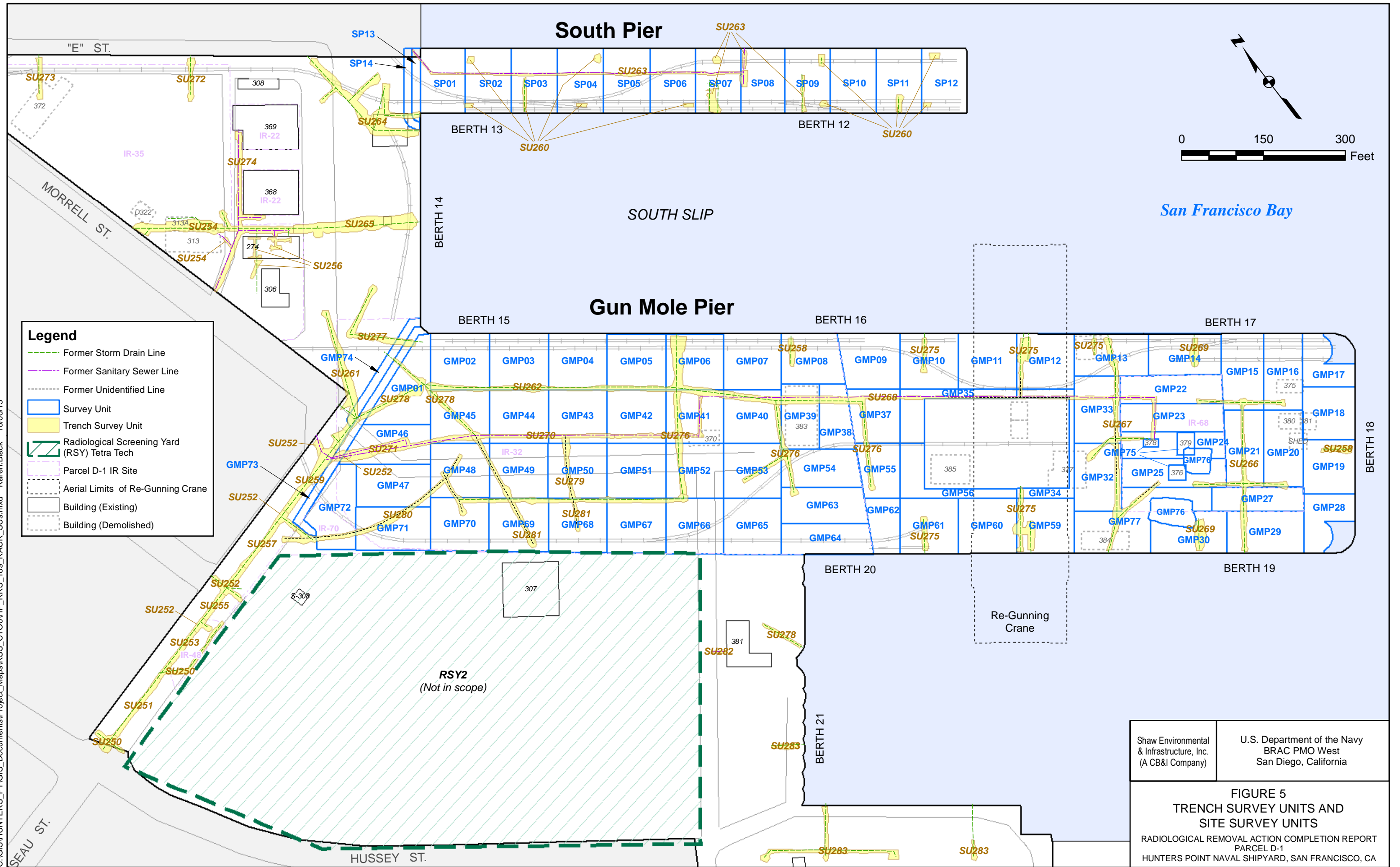
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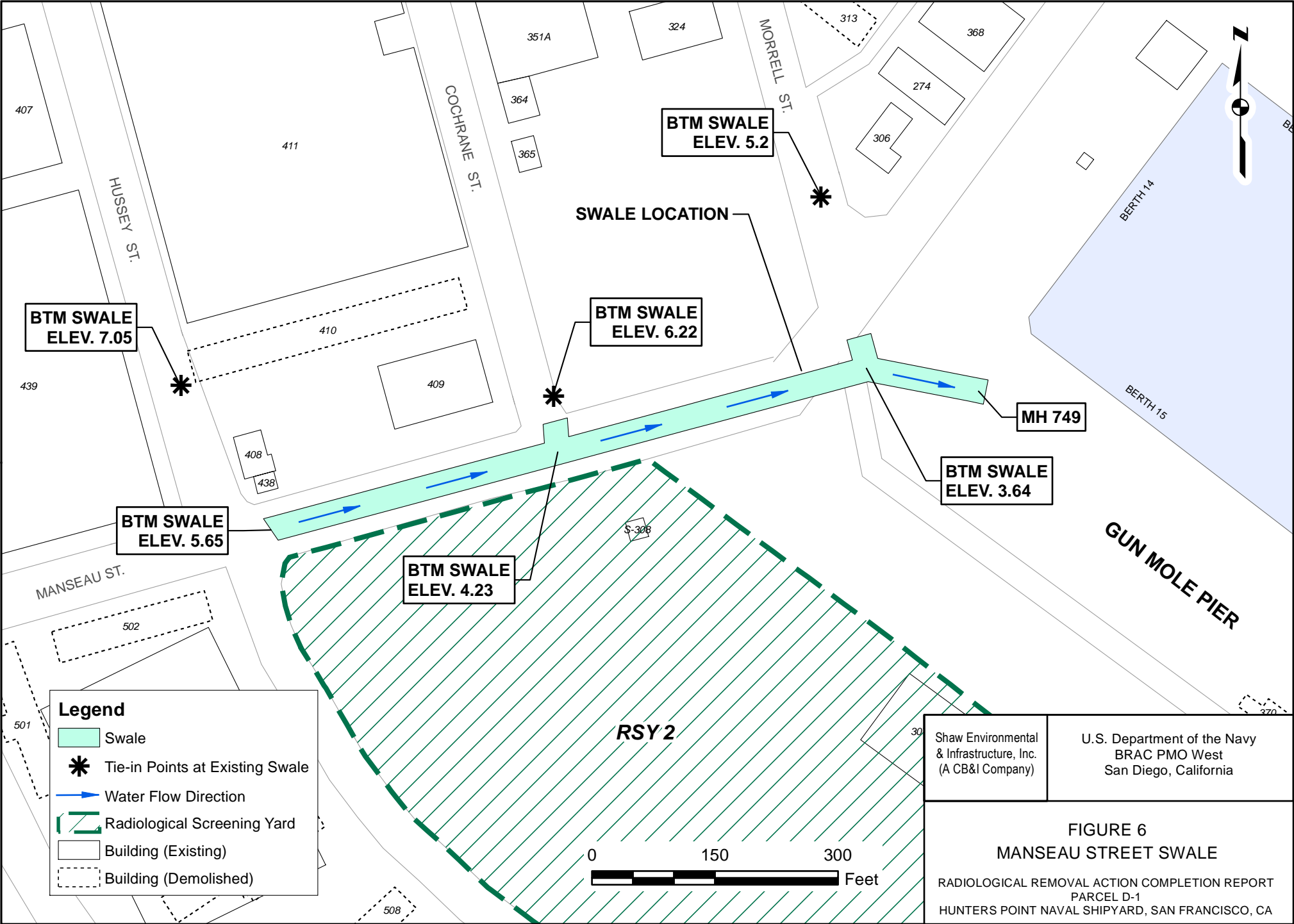
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Shaw Environmental
& Infrastructure, Inc.
(A CB&I Company)

U.S. Department of the Navy
BRAC PMO West
San Diego, California

FIGURE 5
TRENCH SURVEY UNITS AND
SITE SURVEY UNITS
RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT
PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA



Tables

Table 1
Radionuclides of Concern for Parcel D-1 Sites

| Building/Site | Radionuclides of Concern | | | | |
|---|--------------------------|-------------------|-------------------|------------------|-------------------|
| | ¹³⁷ Cs | ²³⁹ Pu | ²²⁶ Ra | ⁹⁰ Sr | ²³² Th |
| Building 274 | • | | • | • | |
| Building 313 | • | • | • | • | • |
| Building 313 A | • | • | • | • | • |
| Building 322 | • | • | • | • | • |
| Building 383 | | | • | • | |
| Gun Mole Pier | • | • | • | • | |
| South Pier | • | • | • | • | |
| Storm Drain and Sanitary Sewer Systems—throughout the entire parcel | • | | • | • | |
| Sewers within Building 274 Radiologically-Impacted Area | • | • | • | • | • |
| Sewers within Building Sites 313/313A/322 Radiologically-Impacted Areas | • | • | • | • | • |
| Sewers within Building 383 Radiologically-Impacted Area | • | | • | • | |
| Sewers within Gun Mole Pier Radiologically-Impacted Area | • | • | • | • | |
| Sewers within South Pier Radiologically-Impacted Area | • | • | • | • | |

Notes:

| | |
|-------------------|----------------------|
| ¹³⁷ Cs | <i>cesium-137</i> |
| ²²⁶ Ra | <i>radium-226</i> |
| ⁹⁰ Sr | <i>strontium-90</i> |
| ²³⁹ Pu | <i>plutonium-239</i> |
| ²³² Th | <i>thorium-232</i> |

Table 2
Radiological Release Criteria

| Radionuclide | Surfaces | | | Soil ^d (pCi/g) | | | | Water ^h (pCi/L) |
|---------------|--|---|---|--|---|-------------------------------------|---|-------------------------------|
| | Equipment, Waste (dpm/100 cm ²) ^a | Structures (dpm/100 cm ²) ^b | Residual Dose (mrem/yr) ^c | Outdoor Worker (pCi/g) ^e | Residual Dose (mrem/yr) ^c | Residential (pCi/g) ^e | Residual Dose (mrem/yr) ^c | |
| Cesium-137 | 5,000 | 5,000 | 1.72 | 0.113 | 0.2142 | 0.113 | 0.2561 | 119 |
| Plutonium-239 | 100 | 100 | 18.1 | 14.0 | 1.743 | 2.59 | 1.138 | 15 |
| Radium-226 | 100 | 100 | 0.612 | 1.0 ^g | 6.342 | 1.0 ^g | 14.59 | 5 ⁱ |
| Strontium-90 | 1,000 | 1,000 | 0.685 | 10.8 | 0.1931 | 0.331 | 1.648 | 8 |
| Thorium-232 | 1,000 | 36.5 | 24.9 | 2.7 | 24.91 | 1.69 | 25 | 15 |

Notes:

Criteria for other nuclides will be listed in TSPs, if needed.

^aThese limits are based on AEC Regulatory Guide 1.86 (1974). Limits for removable surface activity are 20 percent of these values.

^bThese limits are based on 25 mrem/yr, using RESRAD-Build Version 3.3 or Regulatory Guide 1.86, whichever is lower.

^cThe resulting dose is based on modeling using RESRAD-Build Version 3.3 or RESRAD Version 6.3, with radon pathways turned off.

^dEPA PRGs for two future-use scenarios.

^eThe on-site and off-site laboratory will ensure that the MDA meets the listed release criteria by increasing sample size or counting time as necessary. The MDA is defined as the lowest net response level, in counts, that can be seen with a fixed level of certainty, customarily 95 percent. The MDA is calculated per sample by considering background counts, amount of sample used, and counting time.

^fBased on EPA-decay corrected PRGs for commercial reuse and a previous action memorandum (TtEMI, 2000, 2001).

^gLimit is 1 pCi/g above background, per agreement with EPA.

^hRelease criteria for water have been derived from Radionuclides Notice of Data Availability Technical Document, (EPA, 2000) by comparing the limits from two criteria and using the most conservative limit.

ⁱLimit is for total radium concentration.

AEC Atomic Energy Commission
cm² square centimeters
dpm disintegrations per minute
EPA U.S. Environmental Protection Agency
MDA minimum detectable activity

mrem/yr millirem per year
pCi/g picocurie per gram
pCi/L picocurie per liter
PRG Preliminary Remediation Goal
TSP Task-Specific Plan

Table 3
Release Criteria for Storm Drains and Sanitary Sewers

| Radionuclide | Applicability within Parcel D-1 | | Soil ^a (pCi/g) | | Water (pCi/L) ^c |
|---------------|---------------------------------|--|---------------------------|------------------|----------------------------|
| | All Sewers | Sewers within One or More Specific Radiological Sites ^b | Residential | Outdoor Worker | |
| Cesium-137 | Yes | (all sewers) | 0.113 | 0.113 | 119 |
| Plutonium-239 | No | Gun Mole Pier, South Pier, Buildings 313, 313A and 322 Sites | 2.59 | 14.0 | 15 |
| Radium-226 | Yes | (all sewers) | 1.0 ^d | 1.0 ^d | 5 ^e |
| Strontium-90 | Yes | (all sewers) | 0.331 | 10.8 | 8 |
| Thorium-232 | No | Gun Mole Pier, South Pier, Buildings 313, 313A and 322 Sites | 1.69 | 2.7 | 15 |

Notes:

^aThe on-site and off-site laboratory will ensure that the MDA meets the listed release criteria by increasing sample size or counting time as necessary. The MDA is defined as the lowest net response level, in counts, that can be seen with a fixed level of certainty, customarily 95 percent. The MDA is calculated per sample by considering background counts, amount of sample used, and counting time.

^bRadiological Sites within Parcel D-1 are: Building 274; Building 383 Site; Buildings 313, 313A and 322 Sites; Gun Mole Pier; and South Pier.

^cRelease criteria for water have been derived from Radionuclides Notice of Data Availability Technical Document (EPA, 2000) by comparing the limits from two criteria and using the most conservative limit.

^dLimit is 1 pCi/g above background per agreement with EPA

^eLimit is for total radium concentration

^fBased on EPA-decay corrected PRGs for commercial reuse and a previous action memorandum (TtEMI, 2000, 2001)

| | |
|-------|--------------------------------------|
| EPA | U.S. Environmental Protection Agency |
| MDA | minimum detectable activity |
| pCi/g | picocurie per gram |
| pCi/L | picocurie per liter |

Table 4
Derived Airborne Concentration for Radionuclides of Concern

| Radionuclide | Radiation | DAC ($\mu\text{Ci/mL}$) | 10% DAC ($\mu\text{Ci/mL}$) |
|---------------|---------------------------------|------------------------------|----------------------------------|
| Radium-226 | Alpha (α) | 3.0×10^{-10} | 3.0×10^{-11} |
| Plutonium-239 | | 3.0×10^{-12} | 3.0×10^{-13} |
| Thorium-232 | | 5.0×10^{-13} | 5.0×10^{-14} |
| Strontium-90 | Beta (β^-) | 8.0×10^{-9} | 8.0×10^{-10} |
| Cesium-137 | Beta/gamma (β^-/γ) | 6.0×10^{-8} | 6.0×10^{-9} |

Notes:

$\mu\text{Ci/mL}$

microcurie per milliliter

DAC

derived airborne concentration

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|----|--------------------|--|--------------------------------|---------------|-------------------------|--|--|----------------------------|---|--|-------------------------|--|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 24 | 250 | 06-D24-00-6A 06-D24-00-6B 06-D24-00-6C 06-D24-00-6E 06-D24-48-6C 06-D24-48-6D | 494 | 285 | 84 | ²²⁶ Ra ¹³⁷ Cs ¹³⁷ Cs | 1.663 0.144 0.177 | 10.8 | ESU 354 ESU 356 ESU 357 ESU 384 ESU 389 | 100 30 100 50 110 | 10/19/2011 | The model of the backfill material used for Survey Unit 250 resulted in a maximum above background dose of 1.8 mrem/yr and an excess cancer risk of 3E-05. The model of the Trench Survey Unit 250 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. | No further action. |
| 24 | 251 | 06-D24-00-6A | 300 | 131 | 18 | N/A | N/A | N/A | ESU 354 ESU 356 | 50 220 | 12/20/2011 | The model of the backfill material used for Survey Unit 251 resulted in a maximum above background dose of 1.8 mrem/yr and an excess cancer risk of 3E-05. The model of the Trench Survey Unit 251 resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. | No further action. |
| 24 | 252 | 06-D24-00-6E 06-D24-00-6F 06-D24-00-6G 06-D24-00-6H 06-D24-00-6I 06-D24-00-6K 06-D24-00-6L 06-D24-00-7A 06-D24-00-8A 06-D24-00-8C 06-D24-32-7A 06-D24-32-8A 06-D24-48-6F | 581 | 317 | 20 | N/A | N/A | N/A | ESU 354 ESU 357 ESU 358 ESU 360 ESU 384 ESU 389 Import Fill | 30 30 110 80 80 20 180 | 10/10/2011 | The model of the backfill material used at Survey Unit 252 resulted in a maximum above background dose of 0.6 mrem/yr and an excess cancer risk of 9.9E-06. The model of the Trench Survey Unit 252 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. | No further action. |
| 24 | 253 | 06-D24-00-6E | 174 | 74 | 97 | ²²⁶ Ra ¹³⁷ Cs ¹³⁷ Cs ¹³⁷ Cs | 1.571 0.153 0.177 0.167 | 8.2 | ESU 357 | 160 | 12/20/2011 | The model of the backfill material used in Survey Unit 253 resulted in a maximum above-background dose of 2.1 mrem/yr and an excess cancer risk of 4E-05. The model of the trench Survey Unit 253 resulted in a maximum above-background dose of 0.2 mrem/yr and an excess cancer risk of 2.5E-06. | No further action. |
| 24 | 254 | 06-D24-35-2A 06-D24-35-2B 06-D24-35-2C 06-D24-35-2D 06-D24-35-2E 06-D24-35-2F 06-D24-35-4G | 410 | 329 | 147 | ²²⁶ Ra ⁹⁰ Sr ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra | 1.506 0.666 1.511 1.896 1.51 1.77 1.982 1.67 2.107 1.52 1.716 1.487 1.977 1.885 | 332 | ESU 345 Import Fill | 50 459 | 8/21/2012 | The model of the backfill material used at Survey Unit 254 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 2E-06. The model of the trench Survey Unit 254 resulted in a maximum above background dose of 0.8 mrem/yr and an excess cancer risk of 1E-05. | No further action. |

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|--------|--------------------|--|--------------------------------|---------------|-------------------------|--|-------------------------------|----------------------------|--|--------------------------------|-------------------------|---|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 24 | 255 | 06-D24-00-6E | 102 | 57 | 42 | ¹³⁷ Cs ²²⁶ Ra | 0.115 1.703 | 3.7 | ESU 358 | 90 | 12/21/2011 | The model of the backfill material resulted in a maximum above-background dose of 1.7 mrem/yr and an excess cancer risk of 3E-05. The model of the trench survey unit resulted in a maximum above-background dose of 0.14 mrem/yr and an excess cancer risk of 2E-06. | No further action. |
| 24 | 256 | 06-D24-35-2H | 97 | 179 | 22 | N/A | N/A | N/A | Import Fill | 48 | 8/21/2012 | The model of the backfill material used at Survey Unit 256 resulted in a maximum above background dose of 0.06 millirem per year (mrem/yr) and an excess cancer risk of 1E-06. The model of the trench Survey Unit 256 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 2E-06. | No further action. |
| 24 | 257 | 06-D24-00-6K | 192 | 102 | 43 | ²²⁶ Ra | 1.542 | 1.5 | ESU 359 ESU 358 | 250 50 | 10/18/2011 | The model of the backfill material used for Survey Unit 257 resulted in a maximum above-background dose of 1.7 mrem/yr and an excess cancer risk of 3E-05. The model of the trench survey unit resulted in a maximum above-background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. | No further action. |
| 28, 29 | 258 | 06-D28-32-4A 06-D29-00-15A | 152 | 107 | 18 | N/A | N/A | N/A | Import Fill ESU 412 | 90 90 | 12/6/2011 | The model of the backfill material used for Survey Unit 258 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 2E-06. The model of the trench Survey Unit 258 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. | No further action. |
| 24 | 259 | 06-D24-00-6K 06-D24-00-6M 06-D24-00-6N 06-D24-00-6O 06-D24-00-7A 06-D24-00-8B | 411 | 189 | 49 | ²²⁶ Ra | 2.253 | 5.4 | ESU 361 ESU 360 ESU 362 Import Fill | 250 170 20 50 | 10/10/2011 | The model of the backfill material used for Survey Unit 259 resulted in a maximum above background dose of 1.891 mrem/yr and an excess cancer risk of 3.239E-05. The model of the trench Survey Unit 259 resulted in a maximum above background dose of 0.3232 mrem/yr and an excess cancer risk of 4.330E-06. | No further action. |
| 30 | 260 | 06-D30-00-1A 06-D30-00-4A 06-D30-00-5A | 205 | 99 | 45 | ²²⁶ Ra | 1.633 | 2.3 | Import Fill | 280 | 8/20/2012 | The model of the backfill material used at Survey Unit 260 resulted in a maximum above-background dose of 0.1 millirem per year (mrem/yr) and an excess cancer risk of 1E-06. The model of the trench survey unit resulted in a maximum above-background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. | No further action. |
| 24 | 261 | 06-D24-00-6O 06-D24-00-6P 06-D24-00-6S 06-D24-32-6O 06-D24-32-6P 06-D24-32-6Q 06-D24-32-6R 06-D24-32-6S | 595 | 338 | 22 | N/A | N/A | N/A | ESU 362 Import Fill | 20 790 | 10/14/2011 | The model of the backfill material used at Survey Unit 261 resulted in a maximum above background dose of 0.09 mrem/yr and an excess cancer risk of 1E-06. The model of the trench Survey Unit 261 resulted in a maximum above background dose of 0.6 mrem/yr and an excess cancer risk of 8E-06. | No further action. |

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|----|--------------------|--|--------------------------------|---------------|-------------------------|--|---|----------------------------|--|-------------------------------------|-------------------------|---|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 28 | 262 | 06-D28-32-1F 06-D28-32-1G 06-D28-32-1H 06-D28-32-1I 06-D28-32-1L 06-D28-32-1M | 1228 | 767 | 25 | N/A | N/A | N/A | Import Fill | 1260 | 12/22/2011 | The model of the backfill material used for Trench Survey Unit 262 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of Tthe trench Survey Unit 262 resulted in a maximum above background dose of 0.8 mrem/yr and an excess cancer risk of 1E-05. | No further action. |
| 30 | 263 | 06-D30-00-2A 06-D30-00-2B 06-D30-00-2C 06-D30-00-2D 06-D30-00-3A 06-D30-00-6A 06-D30-00-6B 06-D30-00-6C | 547 | 928 | 18 | N/A | N/A | N/A | ESU 374 Import Fill | 160 70 | 8/20/2012 | The model of the backfill material used at trench Survey Unit 263 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. The model of the trench Survey Unit 263 resulted in a maximum above background dose of 1.8 mrem/yr and an excess cancer risk of 3E-05. | No further action. |
| 24 | 264 | 06-D24-00-5A 06-D24-00-5B 06-D24-00-5C 06-D24-00-5D 06-D24-00-5E 06-D24-00-5F | 878 | 568 | 18 | N/A | N/A | N/A | ESU 350 ESU 354 ESU 362 ESU 384 Import Fill | 120 70 210 80 800 | 10/7/2012 | The model of the backfill material resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. The model of the Trench Survey Unit 264 resulted in a maximum above background dose of 0.8 mrem/yr and an excess cancer risk of 1E-05. | No further action. |
| 24 | 265 | 06-D24-35-2F 06-D24-00-2F 06-D24-00-2J 06-D24-00-2K 06-D24-00-2L 06-D24-00-2M | 541 | 233 | 141 | ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra ²²⁶ Ra | 2.094 1.705 1.562 2.022 1.679 1.7 2.827 1.601 1.779 1.593 1.916 1.768 1.655 | 138 | ESU 589 ESU 394 ESU 358 ESU 359 ESU 357 Import Fill | 130 120 33 33 33 545 | 8/22/2012 | The model of the backfill material used at Survey Unit 265 resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. The model of the trench Survey Unit 265 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7E-05. | No further action. |
| 29 | 266 | 06-D29-00-14A 06-D29-00-14B 06-D29-00-14C 06-D29-00-14D 06-D29-00-14E 06-D29-00-14F 06-D29-00-14G 06-D29-68-14A 06-D29-68-14D 06-D29-68-14F | 726 | 600 | 74 | ¹³⁷ Cs ¹³⁷ Cs ¹³⁷ Cs ¹³⁷ Cs | 0.251 0.307 0.338 0.682 | 14 | ESU 412 ESU 424 ESU 434 Import Fill | 160 250 80 190 | 3/12/2012 | The model of the backfill material used for Trench Survey Unit 266 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. The model of Trench Survey Unit 266 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7E-06. | No further action. |

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|--------|--------------------|--|--------------------------------|---------------|-------------------------|-----|-------------------------------|----------------------------|--|--------------------------------|-------------------------|--|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 29 | 267 | 06-D29-00-1B 06-D29-00-9A 06-D29-00-9B 06-D29-00-10A 06-D29-00-11A 06-D29-00-11B 06-D29-00-11C 06-D29-00-11D 06-D29-68-1B 06-D29-68-10A 06-D29-68-11B 06-D29-68-11E | 857 | 778 | 18 | N/A | N/A | N/A | ESU 434 ESU 444 Import Fill | 100 40 460 | 10/26/2012 | The model of the backfill material used for Trench Survey Unit 267 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. The model of Trench Survey Unit 267 resulted in a maximum above background dose of 0.8 mrem/yr and an excess cancer risk of 1E-05. | No further action. |
| 28, 29 | 268 | 06-D28-32-1M 06-D28-32-1N 06-D28-32-1R 06-D28-32-2H 06-D29-00-1A 06-D29-00-16A 06-D29-00-2A | 785 | 1129 | 18 | N/A | N/A | N/A | ESU 443 ESU 444 ESU 456 Import Fill | 70 170 20 480 | 10/18/2011 | The model of the backfill material used for Survey Unit 268 resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. The model of the trench surfaces for Survey Unit 268 resulted in a maximum above background dose of 0.6 mrem/yr and an excess cancer risk of 8E-06. | No further action. |
| 29 | 269 | 06-D29-00-12A 06-D29-00-13A | 192 | 119 | 18 | N/A | N/A | N/A | ESU 444 Import Fill | 40 260 | 10/28/2011 | The model of the backfill material used for Trench Survey Unit 269 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of Trench Survey Unit 269 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. | No further action. |
| 28 | 270 | 06-D28-32-2E | 393 | 235 | 28 | N/A | N/A | N/A | Import Fill | 320 | 3/13/2012 | The model of the backfill material used at Survey Unit 270 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of the trench Survey Unit 270 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. | No further action. |
| 28 | 271 | 06-D28-32-1E 06-D28-32-2A 06-D28-32-2B 06-D28-32-2C 06-D28-32-2D | 663 | 405 | 39 | N/A | N/A | N/A | Import Fill | 770 | 8/23/2012 | The model of the backfill material used at Survey Unit 271 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of the trench Survey Unit 271 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 6E-06. | No further action. |
| 24 | 272 | 06-D24-00-3A 06-D24-35-3A | 99 | 72 | 24 | N/A | N/A | N/A | Import Fill | 110 | 10/6/2011 | The model of the backfill material used for Survey Unit 272 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of the trench Survey Unit 272 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 2E-06. | No further action. |

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|--------|--------------------|---|--------------------------------|---------------|-------------------------|---|-------------------------------|----------------------------|--|--------------------------------|-------------------------|---|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 24 | 273 | 06-D24-00-1A 06-D24-35-1A | 109 | 73 | 23 | N/A | N/A | N/A | Import Fill | 110 | 10/6/2011 | The model of the backfill used for trench Survey Unit 273 resulted in a maximum above background dose of 0.1 millirem per year (mrem/yr) and an excess cancer risk of 1E-06. The model of the trench Survey Unit 273 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 2E-06. | No further action. |
| 24 | 274 | 06-D24-35-2I 06-D24-35-2F 06-D24-35-2G 06-D24-00-4A 06-D24-35-4A 06-D24-00-4B 06-D24-00-4C 06-D24-35-4D 06-D24-35-4E 06-D24-35-4F | 883 | 615 | 39 | N/A | N/A | N/A | ESU 345 ESU 350 Import Fill | 220 130 780 | 10/14/2011 | The model of the backfill material resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. The model of Trench Survey Unit 274 resulted in a maximum above background dose of 0.9 mrem/yr and an excess cancer risk of 1E-05. | No further action. |
| 29 | 275 | 06-D29-00-3A 06-D29-00-4A 06-D29-00-5A 06-D29-00-5B 06-D29-00-6A 06-D29-00-6B 06-D29-00-6C 06-D29-00-6D 06-D29-00-7A 06-D29-00-8A 06-D29-00-16B | 628 | 519 | 18 | N/A | N/A | N/A | ESU 430 ESU 453 ESU 456 Import Fill | 40 80 230 160 | 8/20/2012 | The model of the backfill material used at Survey Unit 275 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. The model of the trench Survey Unit 275 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 6E-06. | No further action. |
| 28, 29 | 276 | 06-D28-32-1J 06-D28-32-1N 06-D28-32-1O 06-D28-32-1P 06-D28-32-1Q 06-D28-32-2E 06-D28-32-2F 06-D28-32-2G 06-D29-00-2B | 467 | 871 | 18 | N/A | N/A | N/A | ESU 453 Import Fill | 170 850 | 11/2/2011 | The model of the backfill material used for Survey Unit 276 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 2E-06. The model of Trench Survey Unit 276 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7E-06. | No further action. |
| 24, 28 | 277 | 06-D24-00-9A 06-D24-32-9A 06-D24-32-9B 06-D28-32-1D | 326 | 232 | 18 | N/A | N/A | N/A | Import Fill | 320 | 10/24/2011 | The model of the backfill used for Trench Survey Unit 277 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E 06. The model of Tthe trench Survey Unit 277 resulted in a maximum above background dose of 0.3 mrem/yr and an excess cancer risk of 4E-06. | No further action. |
| 24, 28 | 278 | 06-D24-32-9C 06-D28-00-5A 06-D28-32-1A 06-D28-32-1B 06-D28-32-1E | 524 | 417 | 46 | ¹³⁷ Cs ¹³⁷ Cs ¹³⁷ Cs | 0.38 0.213 0.454 | 3 | ESU 464 Import Fill | 60 540 | 10/25/2011 | The model of the backfill material resulted in a maximum above-background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. The model of the trench survey unit resulted in a maximum above-background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. | No further action. |

Table 5
Parcel D-1 Trench Survey Unit Data Summary

| WA | Trench Survey Unit | Associated Trench Segments | Surface Area (m ²) | Length (feet) | Total Samples Collected | ROC | Elevated Soil Samples (pCi/g) | Total Soil Remediated (cy) | Survey Unit Backfill Data | | | Net Residual Dose/Risk | Recommendation |
|----|--------------------|--|--------------------------------|---------------|-------------------------|-----|-------------------------------|----------------------------|---------------------------------------|--------------------------------|-------------------------|---|--------------------|
| | | | | | | | | | Backfill Material Source | Estimated Backfill Volume (cy) | Date Backfill Completed | | |
| 28 | 279 | 06-D28-32-1K 06-D28-32-1S 06-D28-32-1T 06-D28-32-1W 06-D28-32-2I | 788 | 573 | 23 | N/A | N/A | N/A | Import Fill | 700 | 3/14/2012 | The model of the backfill material used at Survey Unit 279 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1.2E-06. The model of Trench Survey Unit 279 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7.1E-06. | No further action. |
| 28 | 280 | 06-D28-70-3A 06-D28-70-3B 06-D28-32-3B 06-D28-32-1T 06-D28-32-1U 06-D28-32-1V 06-D28-32-1X | 809 | 598 | 18 | N/A | N/A | N/A | Import Fill | 870 | 3/15/2012 | The model of the backfill material used at Survey Unit 280 resulted in a maximum above background dose of 0.1 mrem/yr and an excess cancer risk of 1E-06. The model of Trench Survey Unit 280 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7E-06. | No further action. |
| 28 | 281 | 06-D28-32-1W 06-D28-32-2I | 210 | 155 | 20 | N/A | N/A | N/A | Import Fill | 150 | 8/22/2012 | The model of the backfill material used at Survey Unit 281 resulted in a maximum above background dose of 0.07 mrem/yr and an excess cancer risk of 1E-06. The model of the trench Survey Unit 281 resulted in a maximum above background dose of 0.2 mrem/yr and an excess cancer risk of 3E-06. | No further action. |
| 28 | 282 | 06-D28-00-6A | 21 | 26 | 27 | N/A | N/A | N/A | ESU 619/623 | 10 | 8/20/2012 | The model of the backfill material used at Trench Survey Unit 282 resulted in a maximum above background dose of 0.07 mrem/yr and an excess cancer risk of 1E-06. The model of Trench Survey Unit 282 resulted in a maximum above background dose of 0.07 mrem/yr and an excess cancer risk of 1E-06. | No further action. |
| 25 | 283 | 06-D25-00-1A 06-D25-00-2A 06-D25-00-2B 06-D25-00-2C 06-D25-00-3A | 520 | 493 | 18 | N/A | N/A | N/A | ESU 619/623 ESU 622 Import Fill | 65 250 45 | 8/23/2012 | The model of the backfill material used at Survey Unit 283 resulted in a maximum above background dose of 0.5 mrem/yr and an excess cancer risk of 7E-06. The model of the trench Survey Unit 283 resulted in a maximum above background dose of 0.4 mrem/yr and an excess cancer risk of 5E-06. | No further action. |

Notes:
¹³⁷ Cs - cesium-137
²²⁶ Ra - radium-226
⁹⁰ Sr - strontium-90
cy - cubic yards
ESU - excavated soil unit
m² - square meters
mrem/yr - millirem per year
N/A - not applicable
pCi/g - picocurie per gram
RASO - Radiological Affairs Support Office
ROC - radionuclide of concern
WA - Work Area

Table 6

Parcel D-1 Trench Survey Units and Associated Trench Segment Data

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|--------|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 24 | 250 | 06-D24-00-6A | SD | RCP | 27 | 6 | 8 | 5 | 7 | Non-LLRW |
| | | 06-D24-00-6B | SD | CIP | 8 | | | | | LLRW |
| | | 06-D24-00-6C | SD | CMP | 8 | | | | | LLRW |
| | | 06-D24-00-6E | SD | RCP | 30 | | | | | Non-LLRW |
| | | 06-D24-48-6C | SD | CMP | 8 | | | | | LLRW |
| | | 06-D24-48-6D | SD | CMP | 6 | | | | | LLRW |
| 24 | 251 | 06-D24-00-6A | SD | RCP | 27 | 8 | 10 | 7 | 9 | Non-LLRW |
| 24 | 252 | 06-D24-00-6E | SD | RCP | 30 | 3 | 5.4 | 2 | 4.4 | Non-LLRW |
| | | 06-D24-00-6F | SD | Metal | 6 | | | | | LLRW |
| | | 06-D24-00-6G | SD | Metal | 6 | | | | | LLRW |
| | | 06-D24-00-6H | SD | RCP | 24 | | | | | LLRW |
| | | 06-D24-00-6I | SD | VCP | 8 | | | | | RSY |
| | | 06-D24-00-6K | SD | RCP | 36 | | | | | LLRW |
| | | 06-D24-00-6L | SD | VCP | 4 | | | | | RSY |
| | | 06-D24-00-7A | SS | VCP | 8 | | | | | RSY |
| | | 06-D24-00-8A | SS | VCP | 8 | | | | | RSY |
| | | 06-D24-00-8C | SS | RCP | 15 | | | | | Non-LLRW |
| | | 06-D24-32-7A | SS | VCP | 8 | | | | | RSY |
| | | 06-D24-32-8A | SS | VCP | 8 | | | | | RSY |
| | | 06-D24-48-6F | SD | Metal | 6 | | | | | LLRW |
| 24 | 253 | 06-D24-00-6E | SD | RCP | 30 | 4 | 8 | 3 | 7 | LLRW |
| 24 | 254 | 06-D24-35-2A | SD | VCP | 24 | 5 | 5.5 | 4 | 4.5 | RSY |
| | | 06-D24-35-2B | SD | VCP | 6 | | | | | RSY |
| | | 06-D24-35-2C | SD | VCP | 6 | | | | | RSY |
| | | 06-D24-35-2D | SD | CIP | 3 | | | | | LLRW |
| | | 06-D24-35-2E | SD | CIP | 2 | | | | | LLRW |
| | | 06-D24-35-2F | SD | VCP | 24 | | | | | RSY |
| | | 06-D24-35-4G | SS | VCP | 6 | | | | | RSY |
| 24 | 255 | 06-D24-00-6E | SD | RCP | 30 | 5 | 6 | 4 | 5 | Non-LLRW |
| 24 | 256 | 06-D24-35-2H | SD | Metal | 2-4 | 0.5 | 4 | 0 | 3 | LLRW |
| 24 | 257 | 06-D24-00-6K | SD | RCP | 36 | 5.5 | 7 | 4.5 | 6 | Non-LLRW |
| 28, 29 | 258 | 06-D28-32-4A | SD | Metal | 3 | 4 | 6 | 3 | 5 | LLRW |
| | | 06-D29-00-15A | SD | Metal | 3 | | | | | LLRW |

Table 6**Parcel D-1 Trench Survey Units and Associated Trench Segment Data**

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|----|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 24 | 259 | 06-D24-00-6K | SD | RCP | 36 | 5 | 6 | 4 | 5 | Non-LLRW |
| | | 06-D24-00-6M | SD | Metal | 6 | | | | | LLRW |
| | | 06-D24-00-6N | SD | RCP | 36 | | | | | Non-LLRW |
| | | 06-D24-00-6O | SD | RCP | 36 | | | | | Non-LLRW |
| | | 06-D24-00-7A | SS | VCP | 8 | | | | | RSY |
| | | 06-D24-00-8B | SS | VCP | 8 | | | | | RSY |
| 30 | 260 | 06-D30-00-1A | SD | Steel | 4 | 2.5 | 6 | 1.5 | 6 | LLRW |
| | | 06-D30-00-4A | SD | Steel | 4 | | | | | LLRW |
| | | 06-D30-00-5A | SD | Steel | 4 | | | | | LLRW |
| 24 | 261 | 06-D24-00-6O | SD | RCP | 36 | 4.2 | 5.5 | 3.2 | 4.5 | RSY |
| | | 06-D24-00-6P | SD | Metal | 8 | | | | | LLRW |
| | | 06-D24-00-6S | SD | RCP | 15 | | | | | RSY |
| | | 06-D24-32-6O | SD | RCP | 36 | | | | | RSY |
| | | 06-D24-32-6P | SD | Metal | 8 | | | | | LLRW |
| | | 06-D24-32-6Q | SD | Metal | 6 | | | | | LLRW |
| | | 06-D24-32-6R | SD | RCP | 15 | | | | | RSY |
| | | 06-D24-32-6S | SD | RCP | 15 | | | | | RSY |
| | | | | | | | | | | |
| 28 | 262 | 06-D28-32-1F | SD | N/A | N/A | 3 | 8 | 2 | 7 | LLRW |
| | | 06-D28-32-1G | SD | RCP | 12 | | | | | LLRW |
| | | 06-D28-32-1H | SD | RCP | 12 | | | | | LLRW |
| | | 06-D28-32-1I | SD | RCP | 12 | | | | | LLRW |
| | | 06-D28-32-1L | SD | RCP | 27 | | | | | LLRW |
| | | 06-D28-32-1M | SD | RCP | 15 | | | | | LLRW |
| | | | | | | | | | | |
| 30 | 263 | 06-D30-00-2A | SD | Metal | 4 | 1 | 5 | 0.5 | 4 | LLRW |
| | | 06-D30-00-2B | SD | Metal | 1 | | | | | LLRW |
| | | 06-D30-00-2C | SD | Metal | 1.5 | | | | | LLRW |
| | | 06-D30-00-2D | SD | Metal | 4 | | | | | LLRW |
| | | 06-D30-00-3A | SD | Metal | 4 | | | | | LLRW |
| | | 06-D30-00-6A | SS | PVC | 4 | | | | | LLRW |
| | | 06-D30-00-6B | SS | Metal | 4 | | | | | LLRW |
| | | 06-D30-00-6C | SS | Metal | 4 | | | | | LLRW |
| | | | | | | | | | | |

Table 6**Parcel D-1 Trench Survey Units and Associated Trench Segment Data**

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|----|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 24 | 264 | 06-D24-00-5A | SD | VCP | 18 | 3 | 5 | 2 | 4 | RSY |
| | | 06-D24-00-5B | SD | Metal | 8 | | | | | LLRW |
| | | 06-D24-00-5C | SD | Metal | 4 | | | | | LLRW |
| | | 06-D24-00-5D | SD | Metal | 10 | | | | | LLRW |
| | | 06-D24-00-5E | SD | Metal | 3 | | | | | LLRW |
| | | 06-D24-00-5F | SD | VCP | 18 | | | | | RSY |
| 24 | 265 | 06-D24-35-2F | SD | VCP | 24 | 4 | 8.5 | 3 | 7.5 | RSY |
| | | 06-D24-00-2F | SD | VCP | 24 | | | | | RSY |
| | | 06-D24-00-2J | SD | VCP | 8 | | | | | RSY |
| | | 06-D24-00-2K | SD | VCP | 24 | | | | | RSY |
| | | 06-D24-00-2L | SD | VCP | 12 | | | | | RSY |
| | | 06-D24-00-2M | SD | VCP | 24 | | | | | RSY |
| 29 | 266 | 06-D29-00-14A | SD | CMP | 8 | 3 | 5.8 | 2 | 4.8 | LLRW |
| | | 06-D29-00-14B | SD | CMP | 10 | | | | | LLRW |
| | | 06-D29-00-14C | SD | CMP | 12 | | | | | LLRW |
| | | 06-D29-00-14D | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-00-14E | SD | CMP | 10 | | | | | LLRW |
| | | 06-D29-00-14F | SD | CMP | 12 | | | | | LLRW |
| | | 06-D29-00-14G | SD | CMP | 12 | | | | | LLRW |
| | | 06-D29-68-14A | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-68-14D | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-68-14F | SD | CMP | 12 | | | | | LLRW |
| | | | | | | | | | | |
| 29 | 267 | 06-D29-00-1B | SS | CMP | 5 | 2 | 6 | 1 | 5 | LLRW |
| | | 06-D29-00-9A | SD | CMP | 10 | | | | | LLRW |
| | | 06-D29-00-9B | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-00-10A | SD | CMP | 2 | | | | | LLRW |
| | | 06-D29-00-11A | SD | CMP | 6 | | | | | LLRW |
| | | 06-D29-00-11B | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-00-11C | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-00-11D | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-68-1B | SS | CMP | 5 | | | | | LLRW |
| | | 06-D29-68-10A | SD | CMP | 2 | | | | | LLRW |
| | | 06-D29-68-11B | SD | CMP | 8 | | | | | LLRW |
| | | 06-D29-68-11E | SD | CMP | 4 | | | | | LLRW |
| | | | | | | | | | | |

Table 6

Parcel D-1 Trench Survey Units and Associated Trench Segment Data

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|--------|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 28, 29 | 268 | 06-D28-32-1M | SD | VCP | 15 | 2 | 4.3 | 1 | 3.3 | RSY |
| | | 06-D28-32-1N | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-1R | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-2H | SS | Metal | 5 | | | | | LLRW |
| | | 06-D29-00-1A | SS | Metal | 5 | | | | | LLRW |
| | | 06-D29-00-16A | SD | RCP | 4 | | | | | LLRW |
| | | 06-D29-00-2A | SD | VCP | 10 | | | | | RSY |
| 29 | 269 | 06-D29-00-12A | SD | Metal | 3 | 5 | 6 | 4 | 5 | LLRW |
| | | 06-D29-00-13A | SD | Metal | 3 | | | | | LLRW |
| 28 | 270 | 06-D28-32-2E | SS | VCP | 8 | 5 | 6 | 4 | 5 | RSY |
| 28 | 271 | 06-D28-32-1E | SS | VCP | 8 | 3.5 | 8.5 | 2.5 | 7.5 | RSY |
| | | 06-D28-32-2A | SS | VCP | 8 | | | | | RSY |
| | | 06-D28-32-2B | SS | VCP | 8 | | | | | RSY |
| | | 06-D28-32-2C | SS | VCP | 8 | | | | | RSY |
| | | 06-D28-32-2D | SS | VCP | 8 | | | | | RSY |
| 24 | 272 | 06-D24-00-3A | SD | VCP | 10 | 4 | 5 | 4 | 3 | RSY |
| | | 06-D24-35-3A | SD | VCP | 10 | | | | | RSY |
| 24 | 273 | 06-D24-00-1A | SD | VCP | 10 | 5 | 5.6 | 4 | 4.6 | RSY |
| | | 06-D24-35-1A | SD | VCP | 10 | | | | | RSY |
| 24 | 274 | 06-D24-35-2F | SD | VCP | 24 | 3 | 9 | 2 | 8 | RSY |
| | | 06-D24-35-2G | SD | VCP | 6 | | | | | RSY |
| | | 06-D24-35-2I | SD | CIP | 4 | | | | | LLRW |
| | | 06-D24-00-4A | SS | VCP | 6 | | | | | RSY |
| | | 06-D24-35-4A | SS | VCP | 6 | | | | | RSY |
| | | 06-D24-00-4B | SS | VCP | 6 | | | | | RSY |
| | | 06-D24-00-4C | SS | VCP | 4 | | | | | RSY |
| | | 06-D24-35-4D | SS | VCP | 4 | | | | | RSY |
| | | 06-D24-35-4E | SS | VCP | 6 | | | | | RSY |
| | | 06-D24-35-4F | SS | VCP | 6 | | | | | RSY |

Table 6**Parcel D-1 Trench Survey Units and Associated Trench Segment Data**

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|--------|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 29 | 275 | 06-D29-00-3A | SD | Metal | 8 | 1.5 | 6.9 | 0.5 | 5.9 | LLRW |
| | | 06-D29-00-4A | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-5A | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-5B | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-6A | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-6B | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-6C | SD | Metal | 3 | | | | | LLRW |
| | | 06-D29-00-6D | SD | Metal | 8 | | | | | LLRW |
| | | 06-D29-00-7A | SD | Metal | 3 | | | | | LLRW |
| | | 06-D29-00-8A | SD | Metal | 3 | | | | | LLRW |
| | | 06-D29-00-16B | SD | Metal | 8 | | | | | LLRW |
| 28, 29 | 276 | 06-D28-32-1J | SD | RCP | 15 | 2 | 5.2 | 1 | 4.2 | LLRW |
| | | 06-D28-32-1N | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-1O | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-1P | SD | VCP | 8 | | | | | RSY |
| | | 06-D28-32-1Q | SD | VCP | 8 | | | | | RSY |
| | | 06-D28-32-2E | SS | VCP | 8 | | | | | RSY |
| | | 06-D28-32-2F | SS | Metal | 5 | | | | | LLRW |
| | | 06-D28-32-2G | SS | Metal | 5 | | | | | LLRW |
| | | 06-D29-00-2B | SD | VCP | 8 | | | | | RSY |
| | | | | | | | | | | |
| 24, 28 | 277 | 06-D24-00-9A | SD | VCP | 8 | 3 | 5 | 2 | 4 | RSY |
| | | 06-D24-32-9A | SD | VCP | 8 | | | | | RSY |
| | | 06-D24-32-9B | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-1D | SD | VCP | 10 | | | | | RSY |
| 24, 28 | 278 | 06-D24-32-9C | SD | Metal | 1.5 | 2 | 7 | 1 | 6 | LLRW |
| | | 06-D28-00-5A | SD | Metal | 10 | | | | | LLRW |
| | | 06-D28-32-1A | SD | RCP | 42 | | | | | LLRW |
| | | 06-D28-32-1B | SD | Metal | 1.5 | | | | | LLRW |
| | | 06-D28-32-1E | SD | VCP | 8 | | | | | RSY |
| 28 | 279 | 06-D28-32-1K | SD | RCP | 12 | 4.5 | 6.3 | 3.5 | 5.3 | LLRW |
| | | 06-D28-32-1S | SD | VCP | 10 | | | | | RSY |
| | | 06-D28-32-1T | SD | VCP | 8 | | | | | RSY |
| | | 06-D28-32-1W | SS | VCP | 6 | | | | | RSY |
| | | 06-D28-32-2I | SD | VCP | 6 | | | | | RSY |

Table 6**Parcel D-1 Trench Survey Units and Associated Trench Segment Data**

| WA | Trench Survey Unit | Trench Segment ID No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Minimum Depth of Trench (feet bgs) | Maximum Depth of Trench (feet bgs) | Minimum Depth of Pipe (feet bgs) | Maximum Depth of Pipe (feet bgs) | Final Disposition |
|----|--------------------|-----------------------|-----------------|---------------|---------------------------|------------------------------------|------------------------------------|----------------------------------|----------------------------------|-------------------|
| 28 | 280 | 06-D28-70-3A | SD | VCP | 4 | 3.5 | 6.5 | 2.5 | 5.5 | RSY |
| | | 06-D28-70-3B | SD | VCP | 4 | | | | | RSY |
| | | 06-D28-32-3B | SD | VCP | 4 | | | | | RSY |
| | | 06-D28-32-1T | SD | VCP | 8 | | | | | RSY |
| | | 06-D28-32-1U | SD | VCP | 4 | | | | | RSY |
| | | 06-D28-32-1V | SD | VCP | 4 | | | | | RSY |
| | | 06-D28-32-1X | SD | VCP | 12 | | | | | RSY |
| 28 | 281 | 06-D28-32-1W | SS | VCP | 6 | 2.5 | 5 | 1.5 | 4 | RSY |
| | | 06-D28-32-2I | SD | VCP | 6 | | | | | RSY |
| 28 | 282 | 06-D28-00-6A | SS | Metal | 4 | 2 | 2 | 1 | 1 | LLRW |
| 25 | 283 | 06-D25-00-1A | SD | VCP | 10 | 3 | 5 | 2 | 4 | RSY |
| | | 06-D25-00-2A | SD | VCP | 6 | | | | | RSY |
| | | 06-D25-00-2B | SD | VCP | 10 | | | | | RSY |
| | | 06-D25-00-2C | SD | VCP | 10 | | | | | RSY |
| | | 06-D25-00-3A | SD | VCP | 10 | | | | | RSY |

Notes:

Crushed and disintegrated piping was transferred with excavated soil to the RSY for radiological processing.

CIP - cast iron pipe

CMP - corrugated metal pipe

LLRW - low-level radioactive waste

N/A - not applicable

RCP - reinforced concrete pipe

RSY - radiological screening yard

SD - storm drain

SS - sanitary sewer

VCP - vitrified clay pipe

WA - work area

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/03/10 | 24 | 250 | 06-D24-00-6A-001 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-002 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-003 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-004 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-005 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-006 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-007 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-008 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-009 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/03/10 | 24 | 250 | 06-D24-00-6A-010 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 250 | 06-D24-00-6A-011 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 250 | 06-D24-00-6A-012 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/05/10 | 24 | 250 | 06-D24-00-6A-040 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 250 | 06-D24-00-6A-041 | N/A | 06-D24-00-6A | 2 | C12 | 357 | Yes | Backfill |
| 11/05/10 | 24 | 250 | MH727-001 | N/A | MH727 | 2 | C12 | 357 | Yes | Backfill |
| 11/05/10 | 24 | 250 | MH727-002 | N/A | MH728 | 2 | C12 | 357 | Yes | Backfill |
| 11/05/10 | 24 | 250 | MH727-003 | N/A | MH729 | 2 | C12 | 357 | Yes | Backfill |
| 11/05/10 | 24 | 250 | MH727-004 | N/A | MH730 | 2 | C12 | 357 | Yes | Backfill |
| 11/05/10 | 24 | 250 | MH727-005 | N/A | MH731 | 2 | C12 | 357 | Yes | Backfill |
| 1/17/11 | 24 | 250 | 06-D24-00-6B-001 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 250 | 06-D24-00-6B-002 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 250 | 06-D24-00-6B-003 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 250 | 06-D24-00-6B-004 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 250 | 06-D24-00-6B-005 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-001 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-002 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-003 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-004 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-005 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6D-006 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-48-6C-001 | 48 | 06-D24-48-6C | 2 | C15 | 389 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-00-6B-006 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 1/18/11 | 24 | 250 | 06-D24-00-6B-007 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-00-6B-008 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/18/11 | 24 | 250 | 06-D24-00-6B-009 | N/A | 06-D24-00-6B | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 250 | 06-D24-48-6D-007 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/19/11 | 24 | 250 | 06-D24-48-6D-008 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/19/11 | 24 | 250 | 06-D24-48-6D-009 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 1/19/11 | 24 | 250 | 06-D24-48-6D-010 | 48 | 06-D24-48-6D | 2 | C15 | 389 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-013 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-014 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-015 | N/A | 06-D24-00-6A | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-016 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-017 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-018 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-019 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-020 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-021 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 251 | 06-D24-00-6A-022 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-023 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-024 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-025 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-026 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-027 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-028 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-029 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-030 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-031 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-032 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-033 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-034 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-035 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-036 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-037 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/05/10 | 24 | 251 | 06-D24-00-6A-038 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/05/10 | 24 | 251 | 06-D24-00-6A-039 | N/A | 06-D24-00-6A | 2 | C11 | 356 | Yes | Backfill |
| 11/04/10 | 24 | 252 | 06-D24-MH730-001 | N/A | MH730 | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 252 | 06-D24-MH730-002 | N/A | MH730 | 2 | C10 | 354 | Yes | Backfill |
| 11/04/10 | 24 | 252 | 06-D24-MH730-003 | N/A | MH730 | 2 | C10 | 354 | Yes | Backfill |
| 11/08/10 | 24 | 252 | 06-D24-00-6E-017 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 252 | 06-D24-00-6E-018 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 252 | 06-D24-00-6E-019 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6E-020 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6E-030 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6E-031 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6E-032 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6E-033 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6K-001 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6K-002 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6K-003 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6K-004 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 252 | 06-D24-00-6K-005 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 252 | 06-D24-00-6K-006 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6K-037 | N/A | 06-D24-00-6K | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6K-038 | N/A | 06-D24-00-6K | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6K-039 | N/A | 06-D24-00-6K | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6K-040 | N/A | 06-D24-00-6K | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6N-001 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6N-002 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6N-003 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 252 | 06-D24-00-6N-004 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 1/17/11 | 24 | 252 | 06-D24-00-6H-001 | N/A | 06-D24-00-6H | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 252 | 06-D24-00-6H-002 | N/A | 06-D24-00-6H | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 252 | 06-D24-00-6H-003 | N/A | 06-D24-00-6H | 2 | C11 | 384 | Yes | Backfill |
| 1/17/11 | 24 | 252 | 06-D24-00-6H-004 | N/A | 06-D24-00-6H | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-48-6F-001 | 48 | 06-D24-48-6F | 2 | C15 | 389 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 1/19/11 | 24 | 252 | 06-D24-48-6F-002 | 48 | 06-D24-48-6F | 2 | C21 | 393 | No | LLRW |
| 1/19/11 | 24 | 252 | 06-D24-48-6F-003 | 48 | 06-D24-48-6F | 2 | C15 | 389 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-001 | N/A | 06-D24-00-6I | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-002 | N/A | 06-D24-00-6I | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-003 | N/A | 06-D24-00-6I | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-004 | N/A | 06-D24-00-6I | 2 | C11 | 384 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-005 | N/A | 06-D24-00-6I | 2 | C20 | 394 | Yes | Backfill |
| 1/19/11 | 24 | 252 | 06-D24-00-6I-006 | N/A | 06-D24-00-6I | 2 | C20 | 394 | Yes | Backfill |
| 1/20/11 | 24 | 252 | 06-D24-00-6L-001 | N/A | 06-D24-00-6L | 2 | C20 | 394 | Yes | Backfill |
| 1/20/11 | 24 | 252 | 06-D24-00-6L-002 | N/A | 06-D24-00-6L | 2 | C20 | 394 | Yes | Backfill |
| 1/20/11 | 24 | 252 | 06-D24-00-6L-003 | N/A | 06-D24-00-6L | 2 | C20 | 394 | Yes | Backfill |
| 1/21/11 | 24 | 252 | 06-D24-00-8C-001 | N/A | 06-D24-00-8C | 2 | C20 | 394 | Yes | Backfill |
| 1/21/11 | 24 | 252 | 06-D24-00-8C-002 | N/A | 06-D24-00-8C | 2 | C20 | 394 | Yes | Backfill |
| 1/21/11 | 24 | 252 | 06-D24-00-8C-003 | N/A | 06-D24-00-8C | 2 | C20 | 394 | Yes | Backfill |
| 1/21/11 | 24 | 252 | 06-D24-00-8C-004 | N/A | 06-D24-00-8C | 2 | C20 | 394 | Yes | Backfill |
| 1/25/11 | 24 | 252 | 06-D24-32-7A-001 | 32 | 06-D24-32-7A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-7A-002 | 32 | 06-D24-32-7A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-001 | 32 | 06-D24-32-8A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-002 | 32 | 06-D24-32-8A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-003 | 32 | 06-D24-32-8A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-004 | 32 | 06-D24-32-8A | 2 | C31 | 369 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-005 | 32 | 06-D24-32-8A | 2 | C30 | 368 | No | LLRW |
| 1/25/11 | 24 | 252 | 06-D24-32-8A-006 | 32 | 06-D24-32-8A | 2 | C30 | 368 | No | LLRW |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-001 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-002 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-003 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-004 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-005 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-006 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-007 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-008 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-009 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/08/10 | 24 | 253 | 06-D24-00-6E-010 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-011 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-012 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-013 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-014 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-015 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 11/08/10 | 24 | 253 | 06-D24-00-6E-016 | N/A | 06-D24-00-6E | 2 | C12 | 357 | Yes | Backfill |
| 2/22/11 | 24 | 254 | 06-D24-35-4G-001 | 35 | 06-D24-35-4G | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-045 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-046 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-047 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-048 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-049 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-050 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2F-051 | 35 | 06-D24-35-2F | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-001 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-002 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-003 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-004 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-005 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-006 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-007 | 35 | 06-D24-35-2A | 2 | C14 | 419 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-008 | 35 | 06-D24-35-2A | 2 | C14 | 419 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-009 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-010 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-011 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-012 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-013 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/22/11 | 24 | 254 | 06-D24-35-2A-014 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-015 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-016 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-017 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 2/23/11 | 24 | 254 | 06-D24-35-2A-018 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-019 | 35 | 06-D24-35-2A | 2 | C13 | 418 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-020 | 35 | 06-D24-35-2A | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-021 | 35 | 06-D24-35-2A | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-022 | 35 | 06-D24-35-2A | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-023 | 35 | 06-D24-35-2A | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2A-024 | 35 | 06-D24-35-2A | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-001 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-002 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-003 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-004 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-005 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-006 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-007 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2B-008 | 35 | 06-D24-35-2B | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2D-001 | 35 | 06-D24-35-2D | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2D-002 | 35 | 06-D24-35-2D | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2E-001 | 35 | 06-D24-35-2E | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2E-002 | 35 | 06-D24-35-2E | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2E-003 | 35 | 06-D24-35-2E | 2 | C16 | 420 | No | LLRW |
| 2/23/11 | 24 | 254 | 06-D24-35-2E-004 | 35 | 06-D24-35-2E | 2 | C16 | 420 | No | LLRW |
| 9/15/11 | 24 | 254 | 06-D24-35-4G-002 | 35 | 06-D24-35-4G | 3 | D03 | 590 | No | LLRW |
| 9/15/11 | 24 | 254 | 06-D24-35-4G-003 | 35 | 06-D24-35-4G | 3 | D03 | 590 | No | LLRW |
| 9/15/11 | 24 | 254 | 06-D24-35-4G-004 | 35 | 06-D24-35-4G | 3 | D03 | 590 | No | LLRW |
| 9/15/11 | 24 | 254 | 06-D24-35-4G-005 | 35 | 06-D24-35-4G | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2F-058 | 35 | 06-D24-35-2F | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2F-059 | 35 | 06-D24-35-2F | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2F-060 | 35 | 06-D24-35-2F | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2F-061 | 35 | 06-D24-35-2F | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-025 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-026 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-027 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/16/11 | 24 | 254 | 06-D24-35-2A-028 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-029 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-030 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-031 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-032 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-033 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-034 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-035 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-036 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-037 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-038 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-039 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-040 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-041 | 35 | 06-D24-35-2A | 3 | D03 | 590 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-042 | 35 | 06-D24-35-2A | 3 | D04 | 591 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-043 | 35 | 06-D24-35-2A | 3 | D04 | 591 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-044 | 35 | 06-D24-35-2A | 3 | D04 | 591 | No | LLRW |
| 9/16/11 | 24 | 254 | 06-D24-35-2A-045 | 35 | 06-D24-35-2A | 3 | D04 | 591 | No | LLRW |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-021 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/08/10 | 24 | 255 | 06-D24-00-6E-022 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-023 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-024 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-025 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-026 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-027 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-028 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 11/09/10 | 24 | 255 | 06-D24-00-6E-029 | N/A | 06-D24-00-6E | 2 | C21 | 358 | Yes | Backfill |
| 10/18/10 | 24 | 256 | 06-D24-35-2H-001 | 35 | 06-D24-35-2H | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 256 | 06-D24-35-2H-002 | 35 | 06-D24-35-2H | 2 | C07 | 349 | No | LLRW |
| 10/19/10 | 24 | 256 | 06-D24-35-2H-003 | 35 | 06-D24-35-2H | 2 | C07 | 349 | No | LLRW |
| 10/19/10 | 24 | 256 | 06-D24-35-2H-004 | 35 | 06-D24-35-2H | 2 | C17 | 352 | No | LLRW |
| 10/20/10 | 24 | 256 | 06-D24-35-2H-005 | 35 | 06-D24-35-2H | 2 | C17 | 352 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/21/12 | 24 | 256 | 06-D24-35-2H-006 | 35 | 06-D24-35-2H | 4 | E10 | 660 | No | LLRW |
| 3/22/12 | 24 | 256 | 06-D24-35-2H-007 | 35 | 06-D24-35-2H | 4 | E10 | 660 | No | LLRW |
| 3/22/12 | 24 | 256 | 06-D24-35-2H-008 | 35 | 06-D24-35-2H | 4 | E10 | 660 | No | LLRW |
| 3/22/12 | 24 | 256 | 06-D24-35-2H-009 | 35 | 06-D24-35-2H | 4 | E10 | 660 | No | LLRW |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-007 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-008 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-009 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-010 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-011 | N/A | 06-D24-00-6K | 2 | C21 | 358 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-012 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-013 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-014 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-015 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-016 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-017 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-018 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-019 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-020 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-021 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-022 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-023 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-024 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-025 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-026 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-027 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-028 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-029 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-030 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-031 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-032 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-033 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-034 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/10/10 | 24 | 257 | 06-D24-00-6K-035 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 11/10/10 | 24 | 257 | 06-D24-00-6K-036 | N/A | 06-D24-00-6K | 2 | C20 | 359 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-001 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-002 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-003 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-004 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-005 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-006 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-007 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-008 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-009 | N/A | 06-D29-00-15A | 2 | C09 | 412 | Yes | Backfill |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-010 | N/A | 06-D29-00-15A | 2 | C10 | 413 | No | LLRW |
| 2/8/11 | 29 | 258 | 06-D29-00-15A-011 | N/A | 06-D29-00-15A | 2 | C10 | 413 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-001 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-002 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-003 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-004 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-005 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-006 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 2/28/11 | 28 | 258 | 06-D28-32-4A-007 | 32 | 06-D28-32-4A | 2 | C37 | 406 | No | LLRW |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-005 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-006 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-007 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-008 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-009 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-010 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-011 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-012 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-013 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-014 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-015 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-016 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/11/10 | 24 | 259 | 06-D24-00-6N-017 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-018 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-019 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-020 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-021 | N/A | 06-D24-00-6N | 2 | C19 | 360 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-022 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-023 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-024 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-025 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-026 | N/A | 06-D24-00-6N | 2 | C09 | 355 | No | LLRW |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-027 | N/A | 06-D24-00-6N | 2 | C09 | 355 | No | LLRW |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-028 | N/A | 06-D24-00-6N | 2 | C09 | 355 | No | LLRW |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-029 | N/A | 06-D24-00-6N | 2 | C09 | 355 | No | LLRW |
| 11/11/10 | 24 | 259 | 06-D24-00-6N-030 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-031 | N/A | 06-D24-00-6N | 2 | C09 | 355 | No | LLRW |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-032 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-033 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-034 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-035 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-036 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-037 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-038 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-039 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-040 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-041 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-042 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-043 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-044 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-045 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-046 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-047 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-048 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/12/10 | 24 | 259 | 06-D24-00-6N-049 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-050 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-051 | N/A | 06-D24-00-6N | 2 | C22 | 361 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-052 | N/A | 06-D24-00-6N | 2 | C24 | 362 | Yes | Backfill |
| 11/12/10 | 24 | 259 | 06-D24-00-6N-053 | N/A | 06-D24-00-6N | 2 | C24 | 362 | Yes | Backfill |
| 10/18/10 | 30 | 260 | MH-725-001 | N/A | MH725 | 2 | C14 | 351 | No | LLRW |
| 10/18/10 | 30 | 260 | MH-725-002 | N/A | MH725 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-725-003 | N/A | MH725 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-726-001 | N/A | MH726 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-726-002 | N/A | MH726 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-721-001 | N/A | MH721 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-721-002 | N/A | MH721 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-723-001 | N/A | MH723 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-723-002 | N/A | MH723 | 2 | C14 | 351 | No | LLRW |
| 10/19/10 | 30 | 260 | MH-723-003 | N/A | MH723 | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | 06-D30-00-4A-001 | N/A | 06-D30-00-4A | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | 06-D30-00-4A-002 | N/A | 06-D30-00-4A | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | 06-D30-00-4A-003 | N/A | 06-D30-00-4A | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | 06-D30-00-4A-004 | N/A | 06-D30-00-4A | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | MH-719-001 | N/A | MH719 | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | MH-719-002 | N/A | MH719 | 2 | C14 | 351 | No | LLRW |
| 10/20/10 | 30 | 260 | MH-719-003 | N/A | MH719 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-718-001 | N/A | MH718 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-718-002 | N/A | MH718 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-718-003 | N/A | MH718 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-717-001 | N/A | MH717 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-717-002 | N/A | MH717 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-716-001 | N/A | MH716 | 2 | C14 | 351 | No | LLRW |
| 10/21/10 | 30 | 260 | MH-715-001 | N/A | MH715 | 2 | C14 | 351 | No | LLRW |
| 10/22/10 | 30 | 260 | 06-D30-00-1A-001 | N/A | 06-D30-00-1A | 2 | C18 | 353 | No | LLRW |
| 10/25/10 | 30 | 260 | 06-D30-00-1A-002 | N/A | 06-D30-00-1A | 2 | C18 | 353 | No | LLRW |
| 10/25/10 | 30 | 260 | 06-D30-00-1A-003 | N/A | 06-D30-00-1A | 2 | C18 | 353 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/26/10 | 30 | 260 | 06-D30-00-1A-004 | N/A | 06-D30-00-1A | 2 | C18 | 353 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-00-6O-001 | N/A | 06-D24-00-6O | 2 | C24 | 362 | Yes | Backfill |
| 11/29/10 | 24 | 261 | 06-D24-00-6O-002 | N/A | 06-D24-00-6O | 2 | C24 | 362 | Yes | Backfill |
| 11/29/10 | 24 | 261 | 06-D24-32-6P-001 | 32 | 06-D24-32-6P | 2 | C28 | 366 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-001 | 32 | 06-D24-32-6O | 2 | C28 | 366 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-002 | 32 | 06-D24-32-6O | 2 | C28 | 366 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-003 | 32 | 06-D24-32-6O | 2 | C28 | 366 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-004 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-005 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-006 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-007 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-008 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-009 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-010 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-011 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-012 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-013 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/29/10 | 24 | 261 | 06-D24-32-6O-014 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6O-015 | 32 | 06-D24-32-6O | 2 | C29 | 367 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-001 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-002 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-003 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-004 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-005 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-001 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-002 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-003 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-004 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-005 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-006 | 32 | 06-D24-32-6R | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-007 | 32 | 06-D24-32-6R | 2 | C29 | 367 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6R-008 | 32 | 06-D24-32-6R | 2 | C29 | 367 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/30/10 | 24 | 261 | 06-D24-32-6S-006 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-007 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-008 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-009 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-010 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-011 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-012 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-013 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-014 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-015 | 32 | 06-D24-32-6S | 2 | C28 | 366 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-016 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-017 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-018 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-019 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-020 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 11/30/10 | 24 | 261 | 06-D24-32-6S-021 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-022 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-023 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-024 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-025 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-026 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-027 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-028 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-029 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-030 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-031 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-032 | 32 | 06-D24-32-6S | 2 | C29 | 367 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-033 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-034 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-035 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-036 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-037 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 12/1/10 | 24 | 261 | 06-D24-32-6S-038 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-039 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-040 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-041 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-042 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-043 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-044 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-045 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-046 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-047 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/1/10 | 24 | 261 | 06-D24-32-6S-048 | 32 | 06-D24-32-6S | 2 | C30 | 368 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-049 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-050 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-051 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-052 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-053 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-054 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 24 | 261 | 06-D24-32-6S-055 | 32 | 06-D24-32-6S | 2 | C31 | 369 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-001 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-002 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-003 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-004 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-005 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-006 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-007 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-008 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-009 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-010 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-011 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-012 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-013 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-014 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 12/2/10 | 28 | 262 | 06-D28-32-1F-015 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-016 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-017 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-018 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-019 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-020 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-021 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-022 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/2/10 | 28 | 262 | 06-D28-32-1F-023 | 32 | 06-D28-32-1F | 2 | C32 | 370 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-001 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-002 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-003 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-004 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-005 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-006 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-007 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-008 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-009 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-010 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-011 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-012 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1G-013 | 32 | 06-D28-32-1G | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-001 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-002 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-003 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-004 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-005 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-006 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-007 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-008 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-009 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/3/10 | 28 | 262 | 06-D28-32-1H-010 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 12/3/10 | 28 | 262 | 06-D28-32-1H-011 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-012 | 32 | 06-D28-32-1H | 2 | C33 | 371 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-013 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-014 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-015 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-016 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-017 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-018 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1H-019 | 32 | 06-D28-32-1H | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-001 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-002 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-003 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-004 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-005 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-006 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-007 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-008 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-009 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-010 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-011 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-012 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-013 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-014 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-015 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-016 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-017 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1I-018 | 32 | 06-D28-32-1I | 2 | C34 | 372 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-001 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-002 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-003 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-004 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-005 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 12/7/10 | 28 | 262 | 06-D28-32-1M-006 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-007 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-008 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-009 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-010 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-011 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-012 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-013 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-014 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-015 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-016 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-017 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-018 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-019 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-020 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 12/7/10 | 28 | 262 | 06-D28-32-1M-021 | 32 | 06-D28-32-1M | 2 | C35 | 373 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-001 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-002 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-003 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-004 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-005 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-006 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-007 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-008 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-009 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/26/11 | 28 | 262 | 06-D28-32-1L-010 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-011 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-012 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-013 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-014 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-015 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/27/11 | 28 | 262 | 06-D28-32-1L-016 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 1/27/11 | 28 | 262 | 06-D28-32-1L-017 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-018 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-019 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-020 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-021 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-022 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-023 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-024 | 32 | 06-D28-32-1L | 2 | C36 | 401 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-025 | 32 | 06-D28-32-1L | 2 | C35 | 373 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-026 | 32 | 06-D28-32-1L | 2 | C35 | 373 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-027 | 32 | 06-D28-32-1L | 2 | C35 | 373 | No | LLRW |
| 1/28/11 | 28 | 262 | 06-D28-32-1L-028 | 32 | 06-D28-32-1L | 2 | C35 | 373 | No | LLRW |
| 1/31/11 | 28 | 262 | 06-D28-32-1L-029 | 32 | 06-D28-32-1L | 2 | C37 | 406 | No | LLRW |
| 1/31/11 | 28 | 262 | 06-D28-32-1L-030 | 32 | 06-D28-32-1L | 2 | C37 | 406 | No | LLRW |
| 1/31/11 | 28 | 262 | 06-D28-32-1L-031 | 32 | 06-D28-32-1L | 2 | C37 | 406 | No | LLRW |
| 1/31/11 | 28 | 262 | 06-D28-32-1L-032 | 32 | 06-D28-32-1L | 2 | C37 | 406 | No | LLRW |
| 10/22/10 | 30 | 263 | 06-D30-00-2A-001 | N/A | 06-D30-00-2A | 2 | C14 | 351 | No | LLRW |
| 1/4/11 | 30 | 263 | 06-D30-00-3A-001 | N/A | 06-D30-00-3A | 2 | C12 | 374 | Yes | Backfill |
| 1/5/11 | 30 | 263 | 06-D30-00-3A-002 | N/A | 06-D30-00-3A | 2 | C12 | 374 | Yes | Backfill |
| 1/5/11 | 30 | 263 | 06-D30-00-3A-003 | N/A | 06-D30-00-3A | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | MH-720-001 | N/A | MH720 | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | MH-720-002 | N/A | MH720 | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | MH-720-003 | N/A | MH720 | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | 06-D30-00-6C-001 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | 06-D30-00-6C-002 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | 06-D30-00-6C-003 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 1/6/11 | 30 | 263 | 06-D30-00-6B-001 | N/A | 06-D30-00-6B | 2 | C12 | 374 | Yes | Backfill |
| 1/7/11 | 30 | 263 | 06-D30-00-6B-002 | N/A | 06-D30-00-6B | 2 | C12 | 374 | Yes | Backfill |
| 1/7/11 | 30 | 263 | 06-D30-00-6B-003 | N/A | 06-D30-00-6B | 2 | C12 | 374 | Yes | Backfill |
| 1/7/11 | 30 | 263 | 06-D30-00-6B-004 | N/A | 06-D30-00-6B | 2 | C12 | 374 | Yes | Backfill |
| 1/10/11 | 30 | 263 | 06-D30-00-6A-001 | N/A | 06-D30-00-6A | 2 | C18 | 353 | No | LLRW |
| 1/11/11 | 30 | 263 | 06-D30-00-2D-001 | N/A | 06-D30-00-2D | 2 | C18 | 353 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 1/11/11 | 30 | 263 | 06-D30-00-2D-002 | N/A | 06-D30-00-2D | 2 | C18 | 353 | No | LLRW |
| 1/11/11 | 30 | 263 | 06-D30-00-2D-003 | N/A | 06-D30-00-2D | 2 | C18 | 353 | No | LLRW |
| 1/11/11 | 30 | 263 | 06-D30-00-2A-002 | N/A | 06-D30-00-2A | 2 | C18 | 353 | No | LLRW |
| 1/11/11 | 30 | 263 | 06-D30-00-2A-003 | N/A | 06-D30-00-2A | 2 | C18 | 353 | No | LLRW |
| 1/17/11 | 30 | 263 | 06-D30-00-6C-004 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 1/17/11 | 30 | 263 | 06-D30-00-6C-005 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 1/18/11 | 30 | 263 | 06-D30-00-6C-006 | N/A | 06-D30-00-6C | 2 | C12 | 374 | Yes | Backfill |
| 10/25/10 | 24 | 264 | 06-D24-00-5D-001 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/25/10 | 24 | 264 | 06-D24-00-5D-002 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/25/10 | 24 | 264 | 06-D24-00-5D-003 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/25/10 | 24 | 264 | 06-D24-00-5D-004 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/25/10 | 24 | 264 | 06-D24-00-5D-005 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-006 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-007 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-008 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-009 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-010 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-011 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/26/10 | 24 | 264 | 06-D24-00-5D-012 | N/A | 06-D24-00-5D | 2 | C13 | 350 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5D-013 | N/A | 06-D24-00-5D | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-001 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-002 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-003 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-004 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-005 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-006 | N/A | 06-D24-00-5E | 2 | C10 | 354 | Yes | Backfill |
| 10/27/10 | 24 | 264 | 06-D24-00-5E-007 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 10/27/10 | 24 | 264 | 06-D24-00-5D-014 | N/A | 06-D24-00-5D | 2 | C09 | 355 | No | LLRW |
| 10/27/10 | 24 | 264 | 06-D24-00-5D-015 | N/A | 06-D24-00-5D | 2 | C09 | 355 | No | LLRW |
| 10/27/10 | 24 | 264 | 06-D24-00-5D-016 | N/A | 06-D24-00-5D | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-001 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-002 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/16/10 | 24 | 264 | 06-D24-00-5F-003 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-004 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-005 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-006 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-007 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-008 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-009 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-010 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-011 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-012 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5F-013 | N/A | 06-D24-00-5F | 2 | C24 | 362 | Yes | Backfill |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-008 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-009 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-010 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-011 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-012 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/16/10 | 24 | 264 | 06-D24-00-5E-013 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-014 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-015 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-016 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-017 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-018 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-019 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-020 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-021 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5E-022 | N/A | 06-D24-00-5E | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5C-001 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 11/17/10 | 24 | 264 | 06-D24-00-5C-002 | N/A | 06-D24-00-5C | 2 | C24 | 362 | Yes | Backfill |
| 11/17/10 | 24 | 264 | 06-D24-00-5C-003 | N/A | 06-D24-00-5C | 2 | C09 | 355 | No | LLRW |
| 11/17/10 | 24 | 264 | 06-D24-00-5C-004 | N/A | 06-D24-00-5C | 2 | C09 | 355 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-005 | N/A | 06-D24-00-5C | 2 | C24 | 362 | Yes | Backfill |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-006 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/18/10 | 24 | 264 | 06-D24-00-5C-007 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-008 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-009 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-010 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-011 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-012 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-013 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5C-014 | N/A | 06-D24-00-5C | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5A-001 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5A-002 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5A-003 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5A-004 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/18/10 | 24 | 264 | 06-D24-00-5A-005 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-006 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-007 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-008 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-009 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-010 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-011 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-012 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-013 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-014 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-015 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-016 | N/A | 06-D24-00-5A | 2 | C25 | 363 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-017 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/19/10 | 24 | 264 | 06-D24-00-5A-018 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-019 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-020 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-021 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-022 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-023 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-024 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/22/10 | 24 | 264 | 06-D24-00-5A-025 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-026 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-027 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-028 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-029 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-030 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-031 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-032 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/22/10 | 24 | 264 | 06-D24-00-5A-033 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-001 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-002 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-003 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-004 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-005 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-006 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5B-007 | N/A | 06-D24-00-5B | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-034 | N/A | 06-D24-00-5A | 2 | C26 | 364 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-035 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-036 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-037 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-038 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-039 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-040 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-041 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-042 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 11/24/10 | 24 | 264 | 06-D24-00-5A-043 | N/A | 06-D24-00-5A | 2 | C27 | 365 | No | LLRW |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-023 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-024 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-025 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-026 | N/A | 06-D24-00-5E | 2 | C27 | 365 | No | LLRW |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-027 | N/A | 06-D24-00-5E | 2 | C24 | 362 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5E-028 | N/A | 06-D24-00-5E | 2 | C11 | 384 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 1/12/11 | 24 | 264 | 06-D24-00-5E-029 | N/A | 06-D24-00-5E | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-044 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-045 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-046 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-047 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-048 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 1/12/11 | 24 | 264 | 06-D24-00-5A-049 | N/A | 06-D24-00-5A | 2 | C11 | 384 | Yes | Backfill |
| 3/18/11 | 24 | 265 | 06-D24-35-2F-052 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/18/11 | 24 | 265 | 06-D24-35-2F-053 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/18/11 | 24 | 265 | 06-D24-35-2F-054 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-35-2F-055 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-35-2F-056 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-35-2F-057 | 35 | 06-D24-35-2F | 2 | C16 | 420 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-001 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-002 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-003 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-004 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-005 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-006 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-007 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2F-008 | N/A | 06-D24-00-2F | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-001 | N/A | 06-D24-00-2K | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-002 | N/A | 06-D24-00-2K | 2 | C20 | 394 | Yes | Backfill |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-003 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-004 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-005 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-006 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-007 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-008 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/21/11 | 24 | 265 | 06-D24-00-2K-009 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-010 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-011 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/22/11 | 24 | 265 | 06-D24-00-2K-012 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-013 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-014 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-015 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-016 | N/A | 06-D24-00-2K | 2 | C27 | 365 | No | LLRW |
| 3/22/11 | 24 | 265 | 06-D24-00-2K-017 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2M-001 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2M-002 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2M-003 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2M-004 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2M-005 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-018 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-019 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-020 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-021 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-022 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-023 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-024 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-025 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-026 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 3/23/11 | 24 | 265 | 06-D24-00-2K-027 | N/A | 06-D24-00-2K | 2 | C06 | 428 | No | LLRW |
| 4/12/11 | 24 | 265 | 06-D24-00-2M-006 | N/A | 06-D24-00-2M | 2 | C20 | 394 | Yes | Backfill |
| 4/12/11 | 24 | 265 | 06-D24-00-2M-007 | N/A | 06-D24-00-2M | 2 | C20 | 394 | Yes | Backfill |
| 4/12/11 | 24 | 265 | 06-D24-00-2M-008 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 4/12/11 | 24 | 265 | 06-D24-00-2M-009 | N/A | 06-D24-00-2M | 2 | C06 | 428 | No | LLRW |
| 9/15/11 | 24 | 265 | 06-D24-00-2F-009 | N/A | 06-D24-00-2F | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2F-010 | N/A | 06-D24-00-2F | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2F-011 | N/A | 06-D24-00-2F | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2F-012 | N/A | 06-D24-00-2F | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-028 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-029 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-030 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/15/11 | 24 | 265 | 06-D24-00-2K-031 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-032 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-033 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-034 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-035 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 9/15/11 | 24 | 265 | 06-D24-00-2K-036 | N/A | 06-D24-00-2K | 3 | D02 | 589 | Yes | Backfill |
| 2/9/11 | 29 | 266 | 06-D29-00-14G-001 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/9/11 | 29 | 266 | 06-D29-00-14G-002 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/9/11 | 29 | 266 | 06-D29-00-14G-003 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/9/11 | 29 | 266 | 06-D29-00-14G-004 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/9/11 | 29 | 266 | 06-D29-00-14G-005 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-006 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-007 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-008 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-009 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-010 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-00-14G-011 | N/A | 06-D29-00-14G | 2 | C09 | 412 | Yes | Backfill |
| 2/28/11 | 29 | 266 | 06-D29-68-14F-001 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 2/28/11 | 29 | 266 | 06-D29-68-14F-002 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 2/28/11 | 29 | 266 | 06-D29-68-14F-003 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 2/28/11 | 29 | 266 | 06-D29-68-14F-004 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 3/1/11 | 29 | 266 | 06-D29-68-14F-005 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 3/1/11 | 29 | 266 | 06-D29-68-14F-006 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 3/1/11 | 29 | 266 | 06-D29-68-14F-007 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 3/1/11 | 29 | 266 | 06-D29-68-14F-008 | 68 | 06-D29-68-14F | 2 | C17 | 423 | No | LLRW |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-001 | N/A | 06-D29-00-14E | 2 | C09 | 412 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-002 | N/A | 06-D29-00-14E | 2 | C09 | 412 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-003 | N/A | 06-D29-00-14E | 2 | C09 | 412 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-004 | N/A | 06-D29-00-14E | 2 | C09 | 412 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-005 | N/A | 06-D29-00-14E | 2 | C09 | 412 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-006 | N/A | 06-D29-00-14E | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-007 | N/A | 06-D29-00-14E | 2 | C19 | 424 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/1/11 | 29 | 266 | 06-D29-00-14E-008 | N/A | 06-D29-00-14E | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14E-009 | N/A | 06-D29-00-14E | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-001 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-002 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-003 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-004 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-005 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-006 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-007 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-008 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-009 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/1/11 | 29 | 266 | 06-D29-00-14C-010 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-011 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-012 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-013 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-014 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-015 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-016 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14C-017 | N/A | 06-D29-00-14C | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14B-001 | N/A | 06-D29-00-14B | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14B-002 | N/A | 06-D29-00-14B | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14B-003 | N/A | 06-D29-00-14B | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14B-004 | N/A | 06-D29-00-14B | 2 | C19 | 424 | Yes | Backfill |
| 3/3/11 | 29 | 266 | 06-D29-00-14B-005 | N/A | 06-D29-00-14B | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14B-006 | N/A | 06-D29-00-14B | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14B-007 | N/A | 06-D29-00-14B | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14B-008 | N/A | 06-D29-00-14B | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14D-001 | N/A | 06-D29-00-14D | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14D-002 | N/A | 06-D29-00-14D | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-001 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-002 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-003 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/4/11 | 29 | 266 | 06-D29-68-14D-004 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-005 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-006 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14D-007 | 68 | 06-D29-68-14D | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-00-14A-001 | N/A | 06-D29-00-14A | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-00-14A-002 | N/A | 06-D29-00-14A | 2 | C22 | 434 | Yes | Backfill |
| 3/4/11 | 29 | 266 | 06-D29-68-14A-001 | 68 | 06-D29-68-14A | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14A-002 | 68 | 06-D29-68-14A | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14A-003 | 68 | 06-D29-68-14A | 2 | C17 | 423 | No | LLRW |
| 3/4/11 | 29 | 266 | 06-D29-68-14A-004 | 68 | 06-D29-68-14A | 2 | C17 | 423 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-68-11B-001 | 68 | 06-D29-68-11B | 2 | C17 | 423 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-68-11B-002 | 68 | 06-D29-68-11B | 2 | C17 | 423 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11B-001 | N/A | 06-D29-00-11B | 2 | C22 | 434 | Yes | Backfill |
| 3/8/11 | 29 | 267 | 06-D29-00-11B-002 | N/A | 06-D29-00-11B | 2 | C22 | 434 | Yes | Backfill |
| 3/8/11 | 29 | 267 | 06-D29-00-11B-003 | N/A | 06-D29-00-11B | 2 | C22 | 434 | Yes | Backfill |
| 3/8/11 | 29 | 267 | 06-D29-00-11B-004 | N/A | 06-D29-00-11B | 2 | C22 | 434 | Yes | Backfill |
| 3/8/11 | 29 | 267 | 06-D29-68-11B-003 | 68 | 06-D29-68-11B | 2 | C17 | 423 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-68-11B-004 | 68 | 06-D29-68-11B | 2 | C17 | 423 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-001 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-002 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-003 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-004 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-005 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-006 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-007 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-008 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/8/11 | 29 | 267 | 06-D29-00-11A-009 | N/A | 06-D29-00-11A | 2 | C10 | 413 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-00-11A-010 | N/A | 06-D29-00-11A | 2 | C22 | 434 | Yes | Backfill |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-001 | N/A | 06-D29-00-11D | 2 | C22 | 434 | Yes | Backfill |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-002 | N/A | 06-D29-00-11D | 2 | C22 | 434 | Yes | Backfill |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-003 | N/A | 06-D29-00-11D | 2 | C22 | 434 | Yes | Backfill |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-004 | N/A | 06-D29-00-11D | 2 | C22 | 434 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/9/11 | 29 | 267 | 06-D29-00-11D-005 | N/A | 06-D29-00-11D | 2 | C23 | 441 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-006 | N/A | 06-D29-00-11D | 2 | C23 | 441 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-007 | N/A | 06-D29-00-11D | 2 | C23 | 441 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-00-11D-008 | N/A | 06-D29-00-11D | 2 | C23 | 441 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-00-9A-001 | N/A | 06-D29-00-9A | 2 | C22 | 434 | Yes | Backfill |
| 3/9/11 | 29 | 267 | 06-D29-68-1B-001 | 68 | 06-D29-68-1B | 2 | C17 | 423 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-68-1B-002 | 68 | 06-D29-68-1B | 2 | C17 | 423 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-68-1B-003 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-68-1B-004 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/9/11 | 29 | 267 | 06-D29-68-1B-005 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/10/11 | 29 | 267 | 06-D29-68-1B-006 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/10/11 | 29 | 267 | 06-D29-68-1B-007 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/10/11 | 29 | 267 | 06-D29-68-1B-008 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/10/11 | 29 | 267 | 06-D29-68-1B-009 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/10/11 | 29 | 267 | 06-D29-68-1B-010 | 68 | 06-D29-68-1B | 2 | C21 | 443 | No | LLRW |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-001 | N/A | 06-D29-00-11C | 2 | C23 | 441 | No | LLRW |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-002 | N/A | 06-D29-00-11C | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-003 | N/A | 06-D29-00-11C | 2 | C23 | 441 | No | LLRW |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-004 | N/A | 06-D29-00-11C | 2 | C23 | 441 | No | LLRW |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-005 | N/A | 06-D29-00-11C | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-006 | N/A | 06-D29-00-11C | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-007 | N/A | 06-D29-00-11C | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 267 | 06-D29-00-11C-008 | N/A | 06-D29-00-11C | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-68-10A-001 | 68 | 06-D29-68-10A | 2 | C21 | 443 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-68-10A-002 | 68 | 06-D29-68-10A | 2 | C21 | 443 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-11E-001 | N/A | 06-D29-00-11E | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-11E-002 | N/A | 06-D29-00-11E | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-10A-001 | N/A | 06-D29-00-10A | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-10A-002 | N/A | 06-D29-00-10A | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-10A-003 | N/A | 06-D29-00-10A | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-9B-001 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-9B-002 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/15/11 | 29 | 267 | 06-D29-00-9B-003 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-9B-004 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/15/11 | 29 | 267 | 06-D29-00-9B-005 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 267 | 06-D29-00-9B-006 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 267 | 06-D29-00-9B-007 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 267 | 06-D29-00-9B-008 | N/A | 06-D29-00-9B | 2 | C25 | 446 | No | LLRW |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-001 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-002 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-003 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-004 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-005 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-006 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-007 | N/A | 06-D29-00-1A | 2 | C22 | 434 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-008 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/10/11 | 29 | 268 | 06-D29-00-1A-008 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-010 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-011 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-012 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-013 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-014 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-015 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-016 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-017 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-018 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-019 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-020 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 268 | 06-D29-00-1A-021 | N/A | 06-D29-00-1A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 28 | 268 | 06-D28-32-2H-001 | 32 | 06-D28-32-2H | 2 | C37 | 406 | No | LLRW |
| 3/11/11 | 28 | 268 | 06-D28-32-2H-002 | 32 | 06-D28-32-2H | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 29 | 268 | 06-D29-00-2A-001 | N/A | 06-D29-00-2A | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 268 | 06-D29-00-2A-002 | N/A | 06-D29-00-2A | 2 | C24 | 444 | Yes | Backfill |
| 3/14/11 | 29 | 268 | 06-D29-00-2A-003 | N/A | 06-D29-00-2A | 2 | C24 | 444 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/14/11 | 28 | 268 | 06-D28-32-1R-001 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-002 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-003 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-004 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-2H-003 | 32 | 06-D28-32-2H | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-2H-004 | 32 | 06-D28-32-2H | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-2H-005 | 32 | 06-D28-32-2H | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-005 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-006 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-007 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-008 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-009 | 32 | 06-D28-32-1R | 2 | C37 | 406 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-010 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-011 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-012 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-013 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-014 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-015 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-016 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-017 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-018 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-019 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-020 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-021 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-022 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/14/11 | 28 | 268 | 06-D28-32-1R-023 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-024 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-025 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-026 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-027 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-028 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1R-029 | 32 | 06-D28-32-1R | 2 | C28 | 445 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/15/11 | 28 | 268 | 06-D28-32-1M-022 | 32 | 06-D28-32-1M | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-023 | 32 | 06-D28-32-1M | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-024 | 32 | 06-D28-32-1M | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-025 | 32 | 06-D28-32-1M | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-026 | 32 | 06-D28-32-1M | 2 | C28 | 445 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-027 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-028 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-029 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-030 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-031 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-032 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-033 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-034 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/15/11 | 28 | 268 | 06-D28-32-1M-035 | 32 | 06-D28-32-1M | 2 | C26 | 447 | No | LLRW |
| 3/21/11 | 29 | 268 | 06-D29-00-1A-022 | N/A | 06-D29-00-1A | 2 | C33 | 456 | Yes | Backfill |
| 3/21/11 | 29 | 268 | 06-D29-00-1A-023 | N/A | 06-D29-00-1A | 2 | C33 | 456 | Yes | Backfill |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-001 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-002 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-003 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-004 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-005 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-006 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-007 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-008 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-009 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-010 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-011 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/10/11 | 29 | 269 | 06-D29-00-12A-012 | N/A | 06-D29-00-12A | 2 | C10 | 413 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-001 | N/A | 06-D29-00-13A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-002 | N/A | 06-D29-00-13A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-003 | N/A | 06-D29-00-13A | 2 | C24 | 444 | Yes | Backfill |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-004 | N/A | 06-D29-00-13A | 2 | C24 | 444 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/11/11 | 29 | 269 | 06-D29-00-13A-005 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-006 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-007 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-008 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-009 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-010 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-011 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-012 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-013 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-014 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-015 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-016 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-017 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 3/11/11 | 29 | 269 | 06-D29-00-13A-018 | N/A | 06-D29-00-13A | 2 | C23 | 441 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-016 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-017 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-018 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-019 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-020 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-021 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-022 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-023 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-024 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-025 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-026 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-027 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-028 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-029 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-030 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-031 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-032 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-033 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/19/11 | 28 | 270 | 06-D28-32-2E-034 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-035 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-036 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-037 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-038 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-039 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-040 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-041 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-042 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-043 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-044 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-045 | 32 | 06-D28-32-2E | 3 | D05 | 592 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-046 | 32 | 06-D28-32-2E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 270 | 06-D28-32-2E-047 | 32 | 06-D28-32-2E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-1E-013 | 32 | 06-D28-32-1E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-1E-014 | 32 | 06-D28-32-1E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-1E-015 | 32 | 06-D28-32-1E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-1E-016 | 32 | 06-D28-32-1E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-1E-017 | 32 | 06-D28-32-1E | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-2D-001 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-2D-002 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/19/11 | 28 | 271 | 06-D28-32-2D-003 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-004 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-005 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-006 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-007 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-008 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-009 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-010 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-011 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-012 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-013 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/20/11 | 28 | 271 | 06-D28-32-2D-014 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-015 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-016 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-017 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-018 | 32 | 06-D28-32-2D | 3 | D06 | 593 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2D-019 | 32 | 06-D28-32-2D | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-001 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-002 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-003 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-004 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-005 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-006 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-007 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-008 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-009 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-010 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-011 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-012 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-013 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-014 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-015 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-016 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-017 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/20/11 | 28 | 271 | 06-D28-32-2C-018 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-019 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-020 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-021 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-022 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-023 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-024 | 32 | 06-D28-32-2C | 3 | D07 | 595 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-025 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-026 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/21/11 | 28 | 271 | 06-D28-32-2C-027 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-028 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-029 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-030 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-031 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-032 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-033 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-034 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-035 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-036 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-037 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-038 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-039 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-040 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-041 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-042 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-043 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-044 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-045 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-046 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-047 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/21/11 | 28 | 271 | 06-D28-32-2C-048 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/26/11 | 28 | 271 | 06-D28-32-2C-049 | 32 | 06-D28-32-2C | 3 | D08 | 596 | No | LLRW |
| 9/26/11 | 28 | 271 | 06-D28-32-2C-050 | 32 | 06-D28-32-2C | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 271 | 06-D28-32-2C-051 | 32 | 06-D28-32-2C | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 271 | 06-D28-32-2C-052 | 32 | 06-D28-32-2C | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 271 | 06-D28-32-2C-053 | 32 | 06-D28-32-2C | 3 | D09 | 600 | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-00-3A-001 | N/A | 06-D24-00-3A | 2 | C03 | 345 | Yes | Backfill |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-001 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-002 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-003 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-004 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/09/10 | 24 | 272 | 06-D24-35-3A-005 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-006 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-007 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 272 | 06-D24-35-3A-008 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 272 | 06-D24-35-3A-009 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 272 | 06-D24-35-3A-010 | 35 | 06-D24-35-3A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-00-1A-001 | N/A | 06-D24-00-1A | 2 | C03 | 345 | Yes | Backfill |
| 10/08/10 | 24 | 273 | 06-D24-00-1A-002 | N/A | 06-D24-00-1A | 2 | C03 | 345 | Yes | Backfill |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-001 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-002 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-003 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-004 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-005 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-006 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-007 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/08/10 | 24 | 273 | 06-D24-35-1A-008 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/09/10 | 24 | 273 | 06-D24-35-1A-009 | 35 | 06-D24-35-1A | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-001 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-002 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-003 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-004 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-005 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-006 | 35 | 06-D24-35-4F | 2 | C04 | N/A | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-007 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-008 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-009 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-010 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-011 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-012 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-013 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-014 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-015 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/12/10 | 24 | 274 | 06-D24-35-4F-016 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-017 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-018 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-019 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-020 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-021 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-022 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/12/10 | 24 | 274 | 06-D24-35-4F-023 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-4F-024 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-4F-025 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-4F-026 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-4F-027 | 35 | 06-D24-35-4F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-001 | 35 | 06-D24-35-2F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-002 | 35 | 06-D24-35-2F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-003 | 35 | 06-D24-35-2F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-004 | 35 | 06-D24-35-2F | 2 | C05 | 347 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-005 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-006 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-007 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-008 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-009 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-010 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-011 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-012 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-013 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-014 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-015 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-016 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-017 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-018 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-019 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/13/10 | 24 | 274 | 06-D24-35-2F-020 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/14/10 | 24 | 274 | 06-D24-35-2F-021 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-022 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-023 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-024 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-025 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-026 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-027 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-028 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-029 | 35 | 06-D24-35-2F | 2 | C06 | 348 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-030 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-031 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-032 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-033 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-034 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-035 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-036 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-037 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-038 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-039 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-35-2F-040 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/14/10 | 24 | 274 | 06-D24-00-4A-001 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/14/10 | 24 | 274 | 06-D24-00-4A-002 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/14/10 | 24 | 274 | 06-D24-00-4A-003 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/14/10 | 24 | 274 | 06-D24-00-4B-001 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/14/10 | 24 | 274 | 06-D24-00-4B-002 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4B-003 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4B-004 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4B-005 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4B-006 | N/A | 06-D24-00-4B | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-35-4A-001 | 35 | 06-D24-00-4A | 2 | C07 | 349 | No | LLRW |
| 10/15/10 | 24 | 274 | 06-D24-35-4A-002 | 35 | 06-D24-00-4A | 2 | C07 | 349 | No | LLRW |
| 10/15/10 | 24 | 274 | 06-D24-35-4A-003 | 35 | 06-D24-00-4A | 2 | C07 | 349 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/15/10 | 24 | 274 | 06-D24-00-4A-004 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-005 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-006 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-007 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-008 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-009 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-010 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-011 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-012 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-013 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-014 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-015 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-016 | N/A | 06-D24-00-4A | 2 | C03 | 345 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-017 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-018 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-019 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-020 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-021 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-022 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-023 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-024 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-025 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-026 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-027 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-028 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/15/10 | 24 | 274 | 06-D24-00-4A-029 | N/A | 06-D24-00-4A | 2 | C13 | 350 | Yes | Backfill |
| 10/18/10 | 24 | 274 | 06-D24-35-2F-041 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2F-042 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2F-043 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2F-044 | 35 | 06-D24-35-2F | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2G-001 | 35 | 06-D24-35-2G | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2G-002 | 35 | 06-D24-35-2G | 2 | C07 | 349 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/18/10 | 24 | 274 | 06-D24-35-2G-003 | 35 | 06-D24-35-2G | 2 | C07 | 349 | No | LLRW |
| 10/18/10 | 24 | 274 | 06-D24-35-2G-004 | 35 | 06-D24-35-2G | 2 | C07 | 349 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-6B-001 | N/A | 06-D29-00-6B | 2 | C29 | 451 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-8A-001 | N/A | 06-D29-00-8A | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-8A-002 | N/A | 06-D29-00-8A | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-7A-001 | N/A | 06-D29-00-7A | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-7A-002 | N/A | 06-D29-00-7A | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-7A-003 | N/A | 06-D29-00-7A | 2 | C25 | 446 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-7A-004 | N/A | 06-D29-00-7A | 2 | C29 | 451 | No | LLRW |
| 3/16/11 | 29 | 275 | 06-D29-00-5B-001 | N/A | 06-D29-00-5B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-5B-003 | N/A | 06-D29-00-5B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-5B-004 | N/A | 06-D29-00-5B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-16B-001 | N/A | 06-D29-00-16B | 2 | C29 | 451 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-5A-001 | N/A | 06-D29-00-5A | 2 | C29 | 451 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-5A-002 | N/A | 06-D29-00-5A | 2 | C29 | 451 | No | LLRW |
| 3/17/11 | 29 | 275 | 06-D29-00-5B-005 | N/A | 06-D29-00-5B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 275 | 06-D29-00-3A-001 | N/A | 06-D29-00-3A | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 275 | 06-D29-00-3A-002 | N/A | 06-D29-00-3A | 2 | C34 | 453 | Yes | Backfill |
| 3/18/11 | 29 | 275 | 06-D29-00-3A-003 | N/A | 06-D29-00-3A | 2 | C34 | 453 | Yes | Backfill |
| 3/18/11 | 29 | 275 | 06-D29-00-3A-004 | N/A | 06-D29-00-3A | 2 | C34 | 453 | Yes | Backfill |
| 3/18/11 | 29 | 275 | 06-D29-00-6B-002 | N/A | 06-D29-00-6B | 2 | C34 | 453 | Yes | Backfill |
| 3/18/11 | 29 | 275 | 06-D29-00-3A-005 | N/A | 06-D29-00-3A | 2 | C34 | 453 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-001 | N/A | 06-D29-00-4A | 2 | C34 | 453 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-002 | N/A | 06-D29-00-4A | 2 | C33 | 456 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-003 | N/A | 06-D29-00-4A | 2 | C33 | 456 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-004 | N/A | 06-D29-00-4A | 2 | C29 | 451 | No | LLRW |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-005 | N/A | 06-D29-00-4A | 2 | C33 | 456 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-006 | N/A | 06-D29-00-4A | 2 | C29 | 451 | No | LLRW |
| 3/21/11 | 29 | 275 | 06-D29-00-4A-007 | N/A | 06-D29-00-4A | 2 | C29 | 451 | No | LLRW |
| 3/21/11 | 29 | 275 | 06-D29-00-6B-003 | N/A | 06-D29-00-6B | 2 | C33 | 456 | Yes | Backfill |
| 3/21/11 | 29 | 275 | 06-D29-00-6B-004 | N/A | 06-D29-00-6B | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6D-001 | N/A | 06-D29-00-6D | 2 | C33 | 456 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/22/11 | 29 | 275 | 06-D29-00-6D-002 | N/A | 06-D29-00-6D | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6D-003 | N/A | 06-D29-00-6D | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6D-004 | N/A | 06-D29-00-6D | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6A-001 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6A-002 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6A-003 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/22/11 | 29 | 275 | 06-D29-00-6A-004 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-001 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-002 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-003 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-004 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-005 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-006 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-007 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6C-008 | N/A | 06-D29-00-6C | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-005 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-006 | N/A | 06-D29-00-6A | 2 | C33 | 456 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-007 | N/A | 06-D29-00-6A | 2 | C04 | 430 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-008 | N/A | 06-D29-00-6A | 2 | C04 | 430 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-009 | N/A | 06-D29-00-6A | 2 | C04 | 430 | Yes | Backfill |
| 3/23/11 | 29 | 275 | 06-D29-00-6A-010 | N/A | 06-D29-00-6A | 2 | C04 | 430 | Yes | Backfill |
| 3/15/11 | 28 | 276 | 06-D28-32-1N-001 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-002 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-003 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-004 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-005 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-006 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-007 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-008 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-009 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-010 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1N-011 | 32 | 06-D28-32-1N | 2 | C26 | 447 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-001 | 32 | 06-D28-32-1Q | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-002 | 32 | 06-D28-32-1Q | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-003 | 32 | 06-D28-32-1Q | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-004 | 32 | 06-D28-32-1Q | 2 | C26 | 447 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-005 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-006 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-007 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-008 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-009 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1Q-010 | 32 | 06-D28-32-1Q | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1O-001 | 32 | 06-D28-32-1O | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1O-002 | 32 | 06-D28-32-1O | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1O-003 | 32 | 06-D28-32-1O | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-001 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-002 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-003 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-004 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-005 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-006 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-007 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-008 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-009 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-011 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/16/11 | 28 | 276 | 06-D28-32-1P-012 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/17/11 | 28 | 276 | 06-D28-32-1P-010 | 32 | 06-D28-32-1P | 2 | C35 | 452 | No | LLRW |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-001 | N/A | 06-D29-00-2B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-002 | N/A | 06-D29-00-2B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-003 | N/A | 06-D29-00-2B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-004 | N/A | 06-D29-00-2B | 2 | C25 | 446 | No | LLRW |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-005 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-006 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-007 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/17/11 | 29 | 276 | 06-D29-00-2B-008 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-009 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-010 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-011 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-012 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-013 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-014 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-015 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-016 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-017 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-018 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-019 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-020 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/17/11 | 29 | 276 | 06-D29-00-2B-021 | N/A | 06-D29-00-2B | 2 | C34 | 453 | Yes | Backfill |
| 3/21/11 | 28 | 276 | 06-D28-32-2G-001 | 32 | 06-D28-32-2G | 2 | C35 | 452 | No | LLRW |
| 3/21/11 | 28 | 276 | 06-D28-32-2G-002 | 32 | 06-D28-32-2G | 2 | C35 | 452 | No | LLRW |
| 3/21/11 | 28 | 276 | 06-D28-32-2G-003 | 32 | 06-D28-32-2G | 2 | C35 | 452 | No | LLRW |
| 3/21/11 | 28 | 276 | 06-D28-32-2E-001 | 32 | 06-D28-32-2E | 2 | C35 | 452 | No | LLRW |
| 3/21/11 | 28 | 276 | 06-D28-32-2E-002 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-003 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-004 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-005 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-006 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-007 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-008 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-009 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-2E-010 | 32 | 06-D28-32-2E | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-001 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-002 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-003 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-004 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-005 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/22/11 | 28 | 276 | 06-D28-32-1J-006 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-007 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-008 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-009 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/22/11 | 28 | 276 | 06-D28-32-1J-010 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-011 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-012 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-013 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-014 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-015 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-016 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-017 | 32 | 06-D28-32-1J | 2 | C32 | 458 | No | LLRW |
| 3/23/11 | 28 | 276 | 06-D28-32-1J-018 | 32 | 06-D28-32-1J | 2 | C05 | 429 | No | LLRW |
| 3/31/11 | 28 | 276 | 06-D28-32-2E-011 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 276 | 06-D28-32-2E-012 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 276 | 06-D28-32-2E-013 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 276 | 06-D28-32-2E-014 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 276 | 06-D28-32-2E-015 | 32 | 06-D28-32-2E | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-019 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-020 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-021 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-022 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-023 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-024 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-025 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-026 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 276 | 06-D28-32-1J-027 | 32 | 06-D28-32-1J | 2 | C26 | 463 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-00-9A-001 | N/A | 06-D24-00-9A | 2 | C06 | 428 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-00-9A-002 | N/A | 06-D24-00-9A | 2 | C06 | 428 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-00-9A-003 | N/A | 06-D24-00-9A | 2 | C06 | 428 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-32-9A-001 | 32 | 06-D24-32-9A | 2 | C31 | 369 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-32-9A-002 | 32 | 06-D24-32-9A | 2 | C31 | 369 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/25/11 | 24 | 277 | 06-D24-32-9A-003 | 32 | 06-D24-32-9A | 2 | C31 | 369 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-32-9A-004 | 32 | 06-D24-32-9A | 2 | C31 | 369 | No | LLRW |
| 3/25/11 | 24 | 277 | 06-D24-32-9A-005 | 32 | 06-D24-32-9A | 2 | C31 | 369 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9A-006 | 32 | 06-D24-32-9A | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9A-007 | 32 | 06-D24-32-9A | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-001 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-002 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-003 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-004 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-005 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-006 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-007 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-008 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-009 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-010 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-011 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/28/11 | 24 | 277 | 06-D24-32-9B-012 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 24 | 277 | 06-D24-32-9B-013 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 24 | 277 | 06-D24-32-9B-014 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 24 | 277 | 06-D24-32-9B-015 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 24 | 277 | 06-D24-32-9B-016 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 24 | 277 | 06-D24-32-9B-017 | 32 | 06-D24-32-9B | 2 | C03 | 431 | No | LLRW |
| 3/29/11 | 28 | 277 | 06-D28-32-1D-001 | 32 | 06-D28-32-1D | 2 | C02 | 432 | No | LLRW |
| 3/29/11 | 28 | 277 | 06-D28-32-1D-002 | 32 | 06-D28-32-1D | 2 | C02 | 432 | No | LLRW |
| 3/29/11 | 28 | 277 | 06-D28-32-1D-003 | 32 | 06-D28-32-1D | 2 | C02 | 432 | No | LLRW |
| 3/29/11 | 28 | 277 | 06-D28-32-1D-004 | 32 | 06-D28-32-1D | 2 | C02 | 432 | No | LLRW |
| 3/29/11 | 28 | 277 | 06-D28-32-1D-005 | 32 | 06-D28-32-1D | 2 | C02 | 432 | No | LLRW |
| 3/29/11 | 28 | 278 | 06-D28-32-1B-001 | 32 | 06-D28-32-1B | 2 | C05 | 429 | No | LLRW |
| 3/29/11 | 28 | 278 | 06-D28-32-1B-002 | 32 | 06-D28-32-1B | 2 | C05 | 429 | No | LLRW |
| 3/29/11 | 28 | 278 | 06-D28-32-1B-003 | 32 | 06-D28-32-1B | 2 | C05 | 429 | No | LLRW |
| 3/29/11 | 24 | 278 | 06-D24-32-9C-001 | 32 | 06-D24-32-9C | 2 | C30 | 368 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-001 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/30/11 | 28 | 278 | 06-D28-32-1A-002 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-003 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-004 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-005 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-006 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-007 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-008 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-009 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-010 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-011 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-012 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-013 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-014 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-015 | 32 | 06-D28-32-1A | 2 | C05 | 429 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-016 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-017 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-018 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-019 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-020 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-021 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-022 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-023 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-024 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-025 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-026 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/30/11 | 28 | 278 | 06-D28-32-1A-027 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-028 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-029 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-030 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-031 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-032 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-033 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/31/11 | 28 | 278 | 06-D28-32-1A-034 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-035 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-036 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-037 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1A-038 | 32 | 06-D28-32-1A | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-001 | 32 | 06-D28-32-1E | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-002 | 32 | 06-D28-32-1E | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-003 | 32 | 06-D28-32-1E | 2 | C01 | 433 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-004 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-005 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-006 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-007 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-008 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-009 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-010 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-011 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 3/31/11 | 28 | 278 | 06-D28-32-1E-012 | 32 | 06-D28-32-1E | 2 | C26 | 463 | No | LLRW |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-001 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-002 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-003 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-004 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-005 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 4/1/11 | 28 | 278 | 06-D28-00-5A-006 | 00 | 06-D28-00-5A | 2 | C14 | 464 | Yes | Backfill |
| 9/26/11 | 28 | 279 | 06-D28-32-1T-011 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 279 | 06-D28-32-1T-012 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 279 | 06-D28-32-1T-013 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-001 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-002 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-003 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-004 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-005 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-006 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/27/11 | 28 | 279 | 06-D28-32-1S-007 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-008 | 32 | 06-D28-32-1S | 3 | D09 | 600 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-009 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-010 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-011 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-012 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-013 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1S-014 | 32 | 06-D28-32-1S | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-001 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-002 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-003 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-004 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-005 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-006 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-007 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-008 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-009 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-010 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-011 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-012 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-013 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-014 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-015 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-016 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/27/11 | 28 | 279 | 06-D28-32-1K-017 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/28/11 | 28 | 279 | 06-D28-32-1K-018 | 32 | 06-D28-32-1K | 3 | D04 | 602 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-001 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-002 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-003 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-004 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-005 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-006 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/29/11 | 28 | 279 | 06-D28-32-2I-007 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-008 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-009 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-010 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-011 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-012 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-013 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-014 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-015 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-2I-016 | 32 | 06-D28-32-2I | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-1W-001 | 32 | 06-D28-32-1W | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-1W-002 | 32 | 06-D28-32-1W | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-1W-003 | 32 | 06-D28-32-1W | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-1W-004 | 32 | 06-D28-32-1W | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 279 | 06-D28-32-1W-005 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-006 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-007 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-008 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-009 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-010 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-011 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-012 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-013 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-014 | 32 | 06-D28-32-1W | 2 | C11 | 608 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-015 | 32 | 06-D28-32-1W | 2 | C11 | 608 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-016 | 32 | 06-D28-32-1W | 2 | C11 | 608 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-017 | 32 | 06-D28-32-1W | 2 | C11 | 608 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-018 | 32 | 06-D28-32-1W | 2 | C11 | 608 | No | LLRW |
| 9/30/11 | 28 | 279 | 06-D28-32-1W-019 | 32 | 06-D28-32-1W | 2 | C33 | 606 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-001 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-002 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-003 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/26/11 | 28 | 280 | 06-D28-32-1T-004 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-005 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-006 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-007 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-008 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-009 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/26/11 | 28 | 280 | 06-D28-32-1T-010 | 32 | 06-D28-32-1T | 3 | D09 | 600 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-001 | 32 | 06-D28-32-1U | 3 | D04 | 602 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-002 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-003 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-004 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-005 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-006 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1U-007 | 32 | 06-D28-32-1U | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-001 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-002 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-003 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-004 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-005 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-006 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-007 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-008 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-009 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-010 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-011 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-012 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-013 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-014 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-015 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-016 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-017 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/28/11 | 28 | 280 | 06-D28-32-1X-018 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 9/29/11 | 28 | 280 | 06-D28-32-1X-019 | 32 | 06-D28-32-1X | 2 | C22 | 604 | No | LLRW |
| 9/29/11 | 28 | 280 | 06-D28-32-1X-020 | 32 | 06-D28-32-1X | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 280 | 06-D28-32-1X-021 | 32 | 06-D28-32-1X | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 280 | 06-D28-32-1X-022 | 32 | 06-D28-32-1X | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 280 | 06-D28-32-1X-023 | 32 | 06-D28-32-1X | 2 | C25 | 605 | No | LLRW |
| 9/29/11 | 28 | 280 | 06-D28-32-1X-024 | 32 | 06-D28-32-1X | 2 | C25 | 605 | No | LLRW |
| 9/30/11 | 28 | 280 | 06-D28-70-3A-001 | 70 | 06-D28-70-3A | 2 | C12 | 609 | No | LLRW |
| 9/30/11 | 28 | 280 | 06-D28-70-3A-002 | 70 | 06-D28-70-3A | 2 | C12 | 609 | No | LLRW |
| 9/30/11 | 28 | 280 | 06-D28-70-3A-003 | 70 | 06-D28-70-3A | 2 | C12 | 609 | No | LLRW |
| 9/30/11 | 28 | 280 | 06-D28-70-3A-004 | 70 | 06-D28-70-3A | 2 | C12 | 609 | No | LLRW |
| 9/30/11 | 28 | 280 | 06-D28-70-3A-005 | 70 | 06-D28-70-3A | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-001 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-002 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-003 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-004 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-005 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-006 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-007 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-008 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-009 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-010 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-011 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-012 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/3/11 | 28 | 280 | 06-D28-70-3B-013 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-014 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-015 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-016 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-017 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-018 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-019 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-70-3B-020 | 70 | 06-D28-70-3B | 2 | C12 | 609 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-001 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/4/11 | 28 | 280 | 06-D28-32-3B-002 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-003 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-004 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-005 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-006 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-007 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-008 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-009 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-010 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-011 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-012 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-013 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-014 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-015 | 32 | 06-D28-32-3B | 2 | C33 | 606 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-016 | 32 | 06-D28-32-3B | 2 | C31 | 611 | No | LLRW |
| 10/4/11 | 28 | 280 | 06-D28-32-3B-017 | 32 | 06-D28-32-3B | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 280 | 06-D28-32-1V-001 | 32 | 06-D28-32-1V | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 280 | 06-D28-32-1V-002 | 32 | 06-D28-32-1V | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 280 | 06-D28-32-1V-003 | 32 | 06-D28-32-1V | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 280 | 06-D28-32-1V-004 | 32 | 06-D28-32-1V | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-017 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-018 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-019 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-020 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-021 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-022 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-023 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-024 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-2I-025 | 32 | 06-D28-32-2I | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-1W-020 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-1W-021 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-1W-022 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 10/5/11 | 28 | 281 | 06-D28-32-1W-023 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-1W-024 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |
| 10/5/11 | 28 | 281 | 06-D28-32-1W-025 | 32 | 06-D28-32-1W | 2 | C31 | 611 | No | LLRW |
| 10/21/11 | 28 | 282 | 06-D28-00-6A-001 | N/A | 06-D28-00-6A | 2 | C11 | 619 | Yes | Backfill |
| 11/2/11 | 25 | 283 | 06-D25-00-3A-001 | N/A | 06-D25-00-3A | 2 | C28 | 622 | Yes | Backfill |
| 11/2/11 | 25 | 283 | 06-D25-00-3A-002 | N/A | 06-D25-00-3A | 2 | C28 | 622 | Yes | Backfill |
| 11/2/11 | 25 | 283 | 06-D25-00-2B-001 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/2/11 | 25 | 283 | 06-D25-00-2B-002 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-003 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-004 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-005 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-006 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-007 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-008 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-009 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2B-010 | N/A | 06-D25-00-2B | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-001 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-002 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-003 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-004 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-005 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-006 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-007 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-008 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2C-009 | N/A | 06-D25-00-2C | 2 | C28 | 622 | Yes | Backfill |
| 11/3/11 | 25 | 283 | 06-D25-00-2A-001 | N/A | 06-D25-00-2A | 2 | C28 | 622 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-002 | N/A | 06-D25-00-2A | 2 | C28 | 622 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-003 | N/A | 06-D25-00-2A | 2 | C28 | 622 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-004 | N/A | 06-D25-00-2A | 2 | C28 | 622 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-005 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-006 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-007 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 11/4/11 | 25 | 283 | 06-D25-00-2A-008 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-009 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-2A-010 | N/A | 06-D25-00-2A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-1A-001 | N/A | 06-D25-00-1A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-1A-002 | N/A | 06-D25-00-1A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-1A-003 | N/A | 06-D25-00-1A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-1A-004 | N/A | 06-D25-00-1A | 2 | C26 | 623 | Yes | Backfill |
| 11/4/11 | 25 | 283 | 06-D25-00-1A-005 | N/A | 06-D25-00-1A | 2 | C26 | 623 | Yes | Backfill |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-001 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-002 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-003 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-004 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-005 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/28/11 | 28 | Bldg 370 | 06-D28-32-2F-006 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/29/11 | 28 | Bldg 370 | 06-D28-32-2F-007 | 32 | 06-D28-32-2F | 2 | C05 | 429 | No | LLRW |
| 3/29/11 | 29 | Bldg 378 | 06-D29-68-10A-003 | 68 | 06-D29-68-10A | 2 | C21 | 443 | No | LLRW |
| 3/30/11 | 29 | Bldg 378 | 06-D29-68-10A-004 | 68 | 06-D29-68-10A | 2 | C21 | 443 | No | LLRW |
| 3/30/11 | 29 | Bldg 378 | 06-D29-68-10A-005 | 68 | 06-D29-68-10A | 2 | C21 | 443 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-001 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-002 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-003 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-004 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-005 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-006 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-007 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-008 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-009 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-010 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-011 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-012 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-013 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 3/17/11 | 30 | N/A | SP-Cs-014 | N/A | N/A | 2 | C11 | 454 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 3/17/11 | 30 | N/A | SP-Cs-015 | N/A | N/A | 2 | C11 | 454 | No | LLRW |
| 6/11/12 | 29 | N/A | GMP-BLG-380-01 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-02 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-03 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-04 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-05 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-06 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-07 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-08 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-09 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-10 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-11 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-12 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-13 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-14 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-15 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-16 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-17 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-18 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-19 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-20 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-21 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-22 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-23 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-24 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-25 | N/A | N/A | 3 | D01 | 717 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-26 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-27 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-01 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-02 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-03 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-04 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 6/11/12 | 29 | N/A | GMP-BLG-384-05 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-06 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-07 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-08 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-09 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-10 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-11 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-12 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-13 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-14 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-15 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-384-16 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 6/11/12 | 29 | N/A | GMP-BLG-380-28 | N/A | N/A | 3 | D02 | 718 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-01 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-02 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-03 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-04 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-05 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-06 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-07 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-08 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-09 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-10 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-11 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-12 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-13 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-14 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-15 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-16 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-17 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-18 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-19 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 8/8/12 | 29 | N/A | 06-D29-00-SU76-20 | N/A | N/A | 3 | D03 | 746 | Yes | Backfill |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-01 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-02 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-03 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-04 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-05 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-06 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-07 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-08 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-09 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-10 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-11 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-12 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-13 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-14 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-15 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-16 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-17 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-18 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-19 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-20 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-21 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-22 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-23 | 68 | N/A | 3 | D04 | 747 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-24 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-25 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-26 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-27 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-28 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-29 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-30 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-31 | 68 | N/A | 3 | D05 | 748 | No | LLRW |

Table 7
Excavated Material Processing and Disposition Summary

| Date Hauled | WA | Associated Trench Survey Unit | Custody Transfer No. | IR Site | Associated Trench Segment/ Manhole ID | RSY | Pad | ESU | Cleared for Re-Use as Backfill? | Disposition |
|-------------|----|-------------------------------|----------------------|---------|---------------------------------------|-----|-----|-----|---------------------------------|-------------|
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-32 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-33 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-34 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-35 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-36 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-37 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-38 | 68 | N/A | 3 | D05 | 748 | No | LLRW |
| 8/8/12 | 29 | N/A | 06-D29-68-SU76-39 | 68 | N/A | 3 | D05 | 748 | No | LLRW |

Notes:

ESU - excavated soil unit

IR - Installation Restoration

LLRW - low-level radioactive waste

N/A - not applicable

RSY - radiological screening yard

WA - work area

Table 8
Parcel D-1 Pipe and Manhole Sediment Samples and Disposition Summary

| WA | Survey Unit | Trench Segment/ Manhole ID No. | Pipe Description | | | | Sediment Sample | | | | Disposition |
|----|-------------|-----------------------------------|------------------|-----------------|---------------|---------------------------|-----------------|-------------------|--|------------------|--------------|
| | | | Section No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Date Collected | Sample ID No. | Elevated ROC | Results (pCi/g) | |
| 24 | 250 | 06-D24-00-6A | 1 | SD | RCP | 27 | 11/4/2010 | 06-PD1PI-0001-001 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 3 | SD | RCP | 27 | 11/4/2010 | 06-PD1PI-0001-002 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6E | 24 | SD | RCP | 30 | 11/9/2010 | 06-PD1PI-0002-001 | N/A | N/A | Non-LLRW |
| | 251 | 06-D24-00-6A | 11 | SD | RCP | 27 | 11/4/2010 | 06-PD1PI-0001-003 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 19 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-004 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 31 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-005 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 39 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-006 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 62 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-007 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 70 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-008 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6A | 92 | SD | RCP | 27 | 11/8/2010 | 06-PD1PI-0001-009 | N/A | N/A | Non-LLRW |
| | 252 | 06-D24-00-6H | 1 | SD | RCP | 24 | 1/17/2011 | 06-PD1PI-0005-001 | ¹³⁷ Cs | 0.2599 | LLRW |
| | | 06-D24-00-6K | 3 | SD | RCP | 36 | 11/10/2010 | 06-PD1PI-0003-001 | ¹³⁷ Cs | 0.131 | LLRW |
| | | 06-D24-00-6K | 31 | SD | RCP | 36 | 11/10/2010 | 06-PD1PI-0003-002 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6K | 37 | SD | RCP | 36 | 11/10/2010 | 06-PD1PI-0003-003 | N/A | N/A | Non-LLRW |
| | 253 | 06-D24-00-6E | 43 | SD | RCP | 30 | 11/9/2010 | 06-PD1PI-0002-002 | N/A | N/A | Non-LLRW |
| | | 06-D24-00-6E | 55 | SD | RCP | 30 | 11/9/2010 | 06-PD1PI-0002-003 | ¹³⁷ Cs Total Sr | 0.1275 0.3350 | LLRW LLRW |
| | | 06-D24-00-6E | 63 | SD | RCP | 30 | 11/9/2010 | 06-PD1PI-0002-004 | ¹³⁷ Cs | 0.2809 | LLRW |
| | 255 | 06-D24-00-6E | 127 | SD | RCP | 30 | 11/10/2010 | 06-PD1PI-0002-005 | ¹³⁷ Cs | 0.1902 | LLRW |
| | 257 | 06-D24-00-6K | 43 | SD | RCP | 36 | 11/10/2010 | 06-PD1PI-0003-004 | ¹³⁷ Cs | 0.1183 | LLRW |
| | | 06-D24-00-6K | 57 | SD | RCP | 36 | 11/11/2010 | 06-PD1PI-0003-005 | ¹³⁷ Cs | 0.2019 | LLRW |
| | | 06-D24-00-6K | 73 | SD | RCP | 36 | 11/11/2010 | 06-PD1PI-0003-006 | N/A | N/A | LLRW |
| | 259 | 06-D24-00-6N | 6 | SD | RCP | 36 | 11/11/2010 | 06-PD1PI-0004-001 | ¹³⁷ Cs | 0.1585 | LLRW |
| | | 06-D24-00-6N | 14 | SD | RCP | 36 | 11/11/2010 | 06-PD1PI-0004-002 | ¹³⁷ Cs ²²⁶ Ra | 0.1455 1.4855 | LLRW LLRW |
| | | 06-D24-00-6N | 21 | SD | RCP | 36 | 11/12/2010 | 06-PD1PI-0004-003 | ¹³⁷ Cs | 0.2233 | LLRW |

Table 8
Parcel D-1 Pipe and Manhole Sediment Samples and Disposition Summary

| WA | Survey Unit | Trench Segment/ Manhole ID No. | Pipe Description | | | | Sediment Sample | | | | Disposition |
|--------|-------------|-----------------------------------|------------------|-----------------|---------------|---------------------------|-----------------|---------------------|-------------------|-----------------|-------------|
| | | | Section No. | Type of Segment | Pipe Material | Diameter of Pipe (inches) | Date Collected | Sample ID No. | Elevated ROC | Results (pCi/g) | |
| 24, 28 | 278 | MH 749 | N/A | N/A | N/A | N/A | 1/19/2012 | 06-PD1-MH749-001 | N/A | N/A | Non-LLRW |
| 29 | 266 | MH 780 | N/A | N/A | N/A | N/A | 2/25/2011 | 06-PD1-MH780-001-01 | N/A | N/A | Non-LLRW |
| | 267 | MH 745 | N/A | N/A | NA | NA | 3/8/2011 | 06-PD1-MH745-001-01 | N/A | N/A | Non-LLRW |
| | | MH 775 | N/A | N/A | N/A | N/A | 3/8/2011 | 06-PD1-MH775-001-01 | N/A | N/A | Non-LLRW |
| | 275 | MH 766 | N/A | N/A | N/A | N/A | 3/17/2011 | 06-PD1-MH766-001-01 | N/A | N/A | Non-LLRW |
| | | MH 768 | N/A | N/A | N/A | N/A | 3/17/2011 | 06-PD1-MH768-001-02 | N/A | N/A | Non-LLRW |
| | | MH 769 | N/A | N/A | N/A | N/A | 3/17/2011 | 06-PD1-MH769-001-03 | N/A | N/A | Non-LLRW |
| 25 | 283 | MH 787 | N/A | N/A | N/A | N/A | 11/2/2011 | 06-PD1-MH787-001 | ¹³⁷ Cs | 0.4798 | LLRW |
| | | MH 785 | N/A | N/A | N/A | N/A | 11/2/2011 | 06-PD1-MH785-001 | N/A | N/A | Non-LLRW |

Notes:

¹³⁷ Cs - cesium-137

²²⁶ Ra - radium-226

LLRW - low-level radioactive waste

N/A - not applicable

pCi/g - picocuries per gram

SD - storm drain

Sr - strontium

RCP - reinforced concrete pipe

WA - work area

Table 9
Parcel D-1 Manhole Summary

| WA | Trench Survey Unit | IR Site | Manhole ID | Date Removed | Removal Status | Identified in Design Plan? | Located in Field? | Final Disposition |
|----|--------------------|---------|------------|--------------|----------------|----------------------------|-------------------|-------------------|
| 24 | 250 | N/A | MH727 | 11/05/10 | Completed | Yes | Yes | Non-LLRW |
| | | 48 | MH742 | 01/18/11 | Completed | No | Yes | Non-LLRW |
| 24 | 252 | N/A | MH729 | 11/09/10 | Completed | Yes | Yes | LLRW |
| | | N/A | MH730 | 11/04/10 | Completed | Yes | Yes | LLRW |
| | | 48 | MH743 | 01/19/11 | Completed | No | Yes | Non-LLRW |
| 24 | 254 | 35 | MH700 | 02/22/11 | Completed | Yes | Yes | Non-LLRW |
| | | 35 | MH701 | N/A | Note 1 | Yes | No | N/A |
| 24 | 259 | N/A | MH732 | 11/11/10 | Completed | Yes | Yes | LLRW |
| | | N/A | MH735 | 11/12/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH736 | 11/12/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH737 | 11/12/10 | Completed | Yes | Yes | Non-LLRW |
| 30 | 260 | N/A | MH715 | 10/21/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH716 | 10/21/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH717 | 10/21/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH718 | 10/21/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH719 | 10/20/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH721 | 10/19/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH722 | 10/19/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH723 | 10/19/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH724 | 10/20/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH725 | 10/18/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH726 | 10/19/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH707 | 12/01/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH708 | 12/01/10 | Completed | Yes | Yes | Non-LLRW |
| 24 | 261 | N/A | MH738 | 11/29/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH739 | 11/30/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH748 | 11/29/10 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH750 | 12/03/10 | Completed | Yes | Yes | Non-LLRW |
| 28 | 262 | 32 | MH752 | 12/07/10 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH756 | 01/31/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH781 | 12/02/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH720 | 01/06/11 | Completed | Yes | Yes | Non-LLRW |
| 30 | 263 | N/A | MH734 | 01/18/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH740 | 01/18/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH741 | 01/18/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH706 | 11/24/10 | Completed | Yes | Yes | Non-LLRW |
| 24 | 264 | N/A | MH710 | 11/16/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH714 | 10/27/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH704 | 03/21/11 | Completed | Yes | Yes | Non-LLRW |
| 24 | 265 | N/A | MH705 | 03/21/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH712 | 03/23/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH713 | 03/22/11 | Completed | Yes | Yes | Non-LLRW |

Table 9
Parcel D-1 Manhole Summary

| WA | Trench Survey Unit | IR Site | Manhole ID | Date Removed | Removal Status | Identified in Design Plan? | Located in Field? | Final Disposition |
|----|--------------------|---------|------------|--------------|----------------|----------------------------|-------------------|-------------------|
| 29 | 266 | 68 | MH744 | 03/04/11 | Completed | No | Yes | Non-LLRW |
| | | 68 | MH776 | 03/04/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH777 | 03/04/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH778 | 03/01/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH779 | 03/03/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH780 | 03/01/11 | Completed | Yes | Yes | Non-LLRW |
| 29 | 267 | N/A | MH745 | 03/08/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH772 | 03/15/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH773 | 03/09/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH774 | 03/09/11 | Completed | Yes | Yes | Non-LLRW |
| | | 68 | MH775 | 03/08/11 | Completed | Yes | Yes | Non-LLRW |
| 29 | 268 | 32 | MH760 | 03/15/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | | N/A | MH764 | 03/14/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | 270 | 32 | MH747 | 09/19/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | 271 | 32 | MH754 | 09/26/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH755 | 09/26/11 | Completed | Yes | Yes | Non-LLRW |
| 24 | 272 | 35 | MH731 | 10/12/10 | Completed | No | Yes | Non-LLRW |
| 24 | 273 | 35 | MH728 | 10/11/10 | Completed | No | Yes | Non-LLRW |
| 24 | 274 | 35 | MH702 | 10/18/10 | Completed | Yes | Yes | Non-LLRW |
| | | 35 | MH703 | 10/13/10 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH733 | 10/15/10 | Completed | No | Yes | Non-LLRW |
| 29 | 275 | N/A | MH766 | 03/18/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH767 | 03/21/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH768 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH769 | 03/17/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH770 | 03/21/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH771 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | 276 | 32 | MH758 | 03/21/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH759 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH761 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH762 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH763 | 03/16/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH765 | 03/17/11 | Completed | Yes | Yes | Non-LLRW |
| 24 | 277 | 32 | MH709 | 03/28/11 | Completed | Yes | Yes | Non-LLRW |
| | | N/A | MH711 | 03/25/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | 278 | N/A | MH788 | 04/01/11 | Completed | Yes | Yes | LLRW |
| | | N/A | MH749 | N/A | Note 2 | Yes | Yes | N/A |
| 28 | 279 | 32 | MH751 | 09/27/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH753 | 09/27/11 | Completed | Yes | Yes | Non-LLRW |
| | | 32 | MH757 | 09/27/11 | Completed | Yes | Yes | Non-LLRW |
| 28 | 280 | 32 | MH746 | 09/26/11 | Completed | Yes | Yes | Non-LLRW |

Table 9
Parcel D-1 Manhole Summary

| WA | Trench Survey Unit | IR Site | Manhole ID | Date Removed | Removal Status | Identified in Design Plan? | Located in Field? | Final Disposition |
|----|--------------------|---------|------------|--------------|----------------|----------------------------|-------------------|-------------------|
| 25 | 283 | N/A | MH782 | 11/02/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH783 | 11/03/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH784 | 11/03/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH785 | 11/02/11 | Completed | No | Yes | Non-LLRW |
| | | N/A | MH787 | 11/03/11 | Completed | No | Yes | LLRW |

Notes:

1 - Manhole 701 could not be located in the field.

2 - Manhole 749 remained in place.

IR - Installation Restoration

LLRW - low-level radioactive waste

N/A - not applicable

WA - work area

Table 10
Parcel D-1 Extraneous Pipe Summary

| Trench Survey Unit | Trench Segment | EP ID No. | Date Discovered | Description | | | | Radiological Survey | | Disposition |
|--------------------|----------------|-----------|-----------------|---------------------|------------------------|---------------|------------|---------------------|----------------|-------------|
| | | | | Length Removed (LF) | Pipe Diameter (inches) | Material Type | Former Use | Date Performed | Survey No. | |
| SU 272 | 06-D24-00-3A | EP-101 | 10/11/10 | 5 | 12 | Steel | Salt Water | 10/14/2010 | HPS-CTO6-0047 | LLRW |
| SU 256 | 06-D24-35-2H | EP-102 | 10/18/10 | 20 | 4 | Cast Iron | Unknown | 10/21/2010 | HPS-CTO6-0076 | Non-LLRW |
| SU 256 | 06-D24-35-2H | EP-103 | 10/18/10 | 15 | 4 | Unknown | Unknown | 10/20/2010 | HPS-CTO6-0072 | Non-LLRW |
| SU 260 | 06-D30-00-4A | EP-104 | 10/20/10 | 5 | 10 | Steel | Salt Water | N/A | N/A | LLRW |
| SU 260 | 06-D30-00-1A | EP-105 | 10/25/10 | 59 | 4 | Steel | Salt Water | N/A | N/A | LLRW |
| SU 263 | 06-D30-00-3A | EP-106 | 01/04/11 | 59 | 4 | Steel | Salt Water | 1/5/2011 | HPS-CTO6-0329 | LLRW |
| SU 264 | 06-D24-00-5E | EP-107 | 01/12/11 | 65 | 3 | Steel | Unknown | 11/16/2010 | HPS-CTO6-0153 | LLRW |
| SU 264 | 06-D24-00-5D | EP-108 | 01/12/11 | 63 | 10 | Steel | Salt Water | 1/11/2011 | HPS-CTO6-0361 | Non-LLRW |
| SU 261 | 06-D24-32-6S | EP-109 | 01/12/11 | 15 | 10 | Steel | Salt Water | N/A | N/A | Non-LLRW |
| SU 262 | 06-D28-32-1M | EP-110 | 01/12/11 | 8 | 3 | Steel | Condensate | N/A | N/A | LLRW |
| SU 262 | 06-D28-32-1L | EP-111 | 01/28/11 | 8 | 8 | Steel | Salt Water | N/A | N/A | LLRW |
| SU 258 | 06-D29-00-15A | EP-112 | 02/08/11 | 6 | 8 | Steel | Salt Water | 11/4/2011 | HPS-CTO6-1610 | LLRW |
| SU 266 | 06-D29-00-14G | EP-113 | 02/09/11 | 6 | 8 | Steel | Salt Water | N/A | N/A | LLRW |
| SU 254 | 06-D24-35-2A | EP-114 | 02/28/11 | 5 | 3 | Steel | Unknown | N/A | N/A | LLRW |
| SU 277 | 06-D24-32-9B | EP-115 | 02/23/11 | 6 | 10 | Steel | Salt Water | 4/15/2011 | HPS-CTO6-00967 | Non-LLRW |
| SU 267 | 06-D29-00-11A | EP-116 | 03/08/11 | 18 | 8 | Steel | Unknown | 3/30/2011 | HPS-CTO6-00873 | LLRW |
| SU 269 | 06-D29-00-12A | EP-117 | 03/10/11 | 5 | 8 | Steel | Salt Water | 3/11/2011 | HPS-CTO6-00728 | LLRW |
| SU 269 | 06-D29-00-13A | EP-118 | 03/11/11 | 5 | 8 | Steel | Salt Water | N/A | N/A | LLRW |
| SU 267 | 06-D29-00-9B | EP-119 | 03/15/11 | 7 | 8 | Steel | Salt Water | 3/30/2011 | HPS-CTO6-00873 | LLRW |
| SU 275 | 06-D29-00-7A | EP-120 | 03/16/11 | 6 | 8 | Steel | Salt Water | 3/30/2011 | HPS-CTO6-00873 | LLRW |
| SU 275 | 06-D29-32-3A | EP-121 | 03/18/11 | 5 | 8 | Steel | Salt Water | 4/15/2011 | HPS-CTO6-00968 | LLRW |
| SU 270 | 06-D28-32-2E | EP-122 | 09/19/11 | 8 | 4 | Steel | Unknown | 9/19/2011 | HPS-CTO6-1449 | LLRW |
| SU 271 | 06-D28-32-2A | EP-123 | 09/20/11 | 20 | 4 | Steel | Unknown | N/A | N/A | LLRW |
| SU 271 | 06-D28-32-2A | EP-124 | 09/20/11 | 20 | 4 | Steel | Unknown | N/A | N/A | LLRW |
| SU 279 | 06-D28-32-1S | EP-125 | 09/27/11 | 40 | 4 | Steel | Unknown | 9/28/2011 | HPS-CTO6-1449 | LLRW |
| SU 280 | 06-D28-32-3B | EP-126 | 10/04/11 | 12 | 4 | Steel | Unknown | 10/5/2011 | HPS-CTO6-1479 | LLRW |
| SU 280 | 06-D28-32-3B | EP-127 | 10/04/11 | 12 | 4 | Steel | Unknown | 10/5/2011 | HPS-CTO6-1479 | LLRW |
| SU 279 | 06-D28-32-1W | EP-128 | 10/05/11 | 55 | 4 | Steel | Unknown | 10/5/2011 | HPS-CTO6-1479 | LLRW |
| SU 279 | 06-D28-32-1W | EP-129 | 10/05/11 | 55 | 3 | Steel | Unknown | 10/5/2011 | HPS-CTO6-1479 | LLRW |

Notes:

EP - extraneous pipe

LF - linear feet

LLRW - low-level radioactive waste

N/A - not applicable

Appendix A

Kick-off Meeting Agenda

KICK-OFF MEETING

September 16, 2010 Field Mobilization Summary for Contract Task Order 0006 Radiological Remediation and Support, Parcel D-1, Hunters Point Shipyard, San Francisco, CA

Purpose and Scope of the Remediation

The purpose of this Time-Critical Removal Action (TCRA) is to achieve the radiological “free release” of Parcel D-1. The major components of field work to achieve this goal are the:

- Excavation of an estimated 28,665 cubic yards of soil and removal of approximately 12,850 feet of storm water and sanitary sewer piping and manholes
- Radiological survey and any necessary remediation of one building, four building sites, and two piers
- Radiological survey and recycling and/or transfer as Low-level Radiological Waste (LLRW), of approximately 840,000 square feet (SF) or 14,700 cubic yards (CY) of asphalt
- Radiological survey and recycling and/or transfer as LLRW, of approximately 26,600 linear feet (LF) of steel railroad rail and steel crane rail
- Lead and asbestos survey and abatement, and subsequent demolition of 10 buildings on the Gun Mole Pier and 1 building on the South Pier
- Backfill of trenches created by sewer removal
- Construction of approximately 900 LF of swales to collect and convey storm water

Contract Work Area (CWA)

Shaw will radiologically remediate Work Areas 24, 28, 29 and 30 of Parcel D-1 (“Contract Work Area”; see attached figure).

Removal of Sewers

All storm water, sanitary and combined sewer systems within the CWA are to be radiologically remediated by removal. Soils that overlie sewer pipe or lie within 1 foot of sewer pipe are considered radiologically impacted and will be excavated and direct-loaded for transport to an RSY for processing by the Navy Basewide Radiological Contractor, Tetra Tech, Inc., under their separate contract to the Navy. Sewer piping and other sewer structures will be excavated, radiologically evaluated and classified as either general debris or LLRW and transferred on-base to either ITSI, Inc. or EMS, Inc., respectively, for management by those contractors under their separate contracts to the Navy.

Radiological Survey of Sewer Trenches

Shaw will radiologically survey the trench sides and bottoms of each Survey Unit (SU) after completing the excavation of that SU. Trench surfaces are to be surveyed compliant to the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) as implemented conformable to Shaw's Parcel D-1 Navy-approved project plans. After removal of sewer piping and related soils, the trench surfaces will be surveyed by manual scan. Soil samples will be collected from trench walls and bottoms and sent to the Basewide Radiological Contractor, Tetra Tech Laboratory, for radionuclide testing with the results reported back to Shaw. When both radiological surface surveys and laboratory analysis indicate satisfactory results, Shaw will request concurrence from the Navy's Radiological Affairs Support Office (RASO) to backfill the trenches with approved soil.

Backfill of Sewers

Shaw will load, haul and backfill the excavated sewer trenches using soils from two approved HPS sources: Soils excavated from Parcel D-1 sewer trenches, delivered to RSYs and processed for release and use as backfill after Navy/RASO approval; and the approved borrow pile located near Building 600 in Parcel E. Backfill will be placed in specified trench segments in accordance with Shaw project plans and RASO concurrence of RES-RAD dosage models for trench SUs.

Radiological Screening and Management of Asphalt, Steel Rails and Wood Rail Ties

Shaw will remove in-place asphalt from the two pier sites and either recycle it or manage it as LLRW based on results of radiological surveys. Shaw will radiologically scan the asphalt in-place and then remove it and manage it in piles corresponding to SUs. Shaw will radiologically survey the soil surfaces exposed by asphalt removal. If both the pre-removal and post-removal surveys indicate the asphalt is not radiologically contaminated, Shaw will crush it onsite for use in re-grading within the CWA following backfill of excavations. Shaw will load radiologically contaminated asphalt into bins supplied by EMS under their separate contract to the Navy for management as LLRW.

Shaw will remove in-place railroad and crane rail from the pier sites and recycle them or manage them as LLRW based on radiological survey. Shaw will transfer LLRW rail to EMS within the CWA for management as LLRW under their separate contract to the Navy. Shaw expects to recycle all rail determined to be radiologically uncontaminated.

Shaw will remove all in-place wood ties found during rail removal. Shaw expects to direct-load all the ties as LLRW, into bins supplied by EMS under their separate contract to the Navy.

Radiological Survey and Remediation of Building and Pier Sites

Shaw will radiologically survey five building sites and two pier sites identified as radiologically impacted. Surveys will include scans, static measurements and soil media testing for ROCs performed compliant to MARSSIM and Shaw's Task-Specific Plans (TSPs). Soil media samples will be analyzed by the Basewide Radiological Contractor, Tetra Tech Laboratory, under their separate contract to the Navy and reported back to Shaw. Any ground or soil surfaces found to be radiologically contaminated will be excavated down one foot and resurveyed in accordance with the TSPs.

Demolition of Buildings

Shaw will demolish eleven buildings and a shed located on the Gun Mole Pier and one building on the South Pier. The structures are not radiologically impacted. Demolition will be performed upon completion of structural safety surveys, any necessary abatement of lead-painted surfaces and asbestos-containing materials (ACMs), and under appropriate dust controls. Building debris will be managed and disposed by waste stream: ACM waste, general debris, and salvageable ferrous and non-ferrous metals. Disposal of metals will primarily be made by Shaw subcontractor Yerba Buena Engineering via recycling. Other debris will be sorted and managed within the CWA pending transfer to the Navy Disposal Contractor, ITSI, for disposal under their separate contract to the Navy.

Building removal will cease at grade. No sub-pavement removal or piercing will be performed during the demolition.

Construction of Storm water Swales

Shaw will construct approximately 900 LF of lined storm water collection and conveyance swales. The swales will connect those recently constructed in Parcel G to an existing outfall located along the seawall of Parcel D, to replace major storm drain “mains” removed as part of radiological remediation.

Work Tasks

The following site features and work activities will be executed:

Notifications, Training and Mobilization

Preparatory Meetings

Erecting Perimeter Fencing and Establishing Radiological Controls

Underground Utility Location

Baseline Topographic Survey

Excavation Progress Surveys

Placing, Inspecting and Maintaining Storm water BMPs

Storm water Quality Testing

Pre-Demolition Structural Safety Surveys

Dust Suppression and Air Monitoring

Breaking and Sawcutting Asphalt and Concrete

Managing SU Lay-Down Areas for Broken-Out Asphalt

Shearing, Cutting or Breaking of Steel, Timber and Other Debris for Transport and Disposal

Wrapping ACM or Other Debris

Lifting and Loading Debris

Direct-Loading Soil to Trucks and Bins

Laying Back Earthen Slopes

Lifting Pipe and Other Sewer Structures

Sampling Sediment within Pipes or Other Sewer Structures
Hot-Tapping and Sawcutting Extraneous Piping in Sewer Trenches
Capping, Plugging or Removing Extraneous Pipe
Evaluating Pipe for Radiological Contamination and ACMs and Classifying it for Disposal
Loading Pipe to Trucks and Bins
Direct-Loading of Wood to Bins
Radiologically Evaluating Steel Rail
Loading Steel to Trucks or Bins
Radiological Scans of Horizontal Surfaces by Hand-held or “Buggy”-Mounted Methods
Making Static Measurements of Gamma Activity
Collecting and Testing Activity of Radiological “Swipe” Samples for Removable Contamination
Sampling, Handling and Transfer of Soil Samples for Radiological Testing
Loading, Hauling and Placing Clean Soils into Trench Excavations
Backfilling Excavations
Constructing Storm Water Swales
Removing Fencing, Unused Materials, BMPs and Project Equipment

Work Schedule

Shaw will work 5 each 8-hour weekdays to coincide with the hours of operation for the RSY. Upon completing mobilization and pre-work topographic and utility surveys Shaw will begin sewer excavation, lead and asbestos survey and abatement, and building demolition. Sewer removal will begin in Work Area 24 (“The triangle”) and proceed to Work Areas 30, 29 and 28 (respectively the South Pier, seaward Gun Mole Pier and Inland Gun Mole Pier). Sewer trench backfilling is expected to begin approximately 3 weeks after sewer removal and generally proceed at a parallel rate. Field work is expected to be completed in 30 weeks.

Radiological Controls and Materials Management

Shaw will implement radiological controls in the CWA in accordance with a Memorandum of Understanding (MOU) that will be jointly authorized by itself, Tetra Tech and EMS and in accordance with Shaw’s Navy-approved Parcel D-1 Radiological Protection Plan, Radiological Work Plan and other Parcel D-1 plans. Controls will be managed to protect persons, property and the environment and will be removed from the parcel incrementally as concurrence of non-impact is received from RASO and backfilling of excavations are completed.

Environmental Controls

Shaw will control dust emissions from vehicle operations, exposed soil surfaces, stockpiled materials and other sources, and storm water quality emissions by containing runoff and minimizing rain and runoff contact with recently exposed soil surfaces or materials that may have disturbed, modified by or affected this work. Both air quality and storm water quality will be monitored by sampling and testing.

Appendix B

Air Monitoring Report

Hunters Point Naval Shipyard - Air Monitoring Summary
Parcel D-1, Contract Task Order (CTO 6)
October 6, 2010 through November 13, 2012

Objective-Locations - Air monitoring was performed to ensure worker and community safety in accordance with U.S.EPA and California ARB/BAAQMD approved methodology, and also in accordance with the *Dust Control Plan for Time Critical Removal Actions* ("basewide dust control plan"; May 15, 2009). Monitoring stations were located upwind and downwind from the overall work area based on prevailing wind direction. Monitoring stations were moved based on forecasts of strong or sustained winds not originating from the west. A figure showing locations of air monitoring stations is presented on the following page of this report. Each monitoring station included three different monitoring systems: one each for total suspended particulates (TSP) (including manganese [Mn] and lead [Pb]), particulate matter with diameter less than 10 microns (PM10), and asbestos.

Schedule Coverage - Air monitoring was performed from early morning Monday through close of business on Friday. From Monday morning until Friday morning, monitoring stations were run continuously for 24 hour cycles. This generated four (4) samples (for each analyte listed below, for each monitoring station). Friday monitoring was performed from early morning until end of the work day, i.e. 8 to 10 hours. Note that for asbestos, monitoring was performed for ten (10) hours Monday through Thursday, and for approximately eight (8) hours on Friday. This operational schedule was consistent with that performed currently by other primary Navy HPNS contractors, and evaluated both background and operations-related air quality.

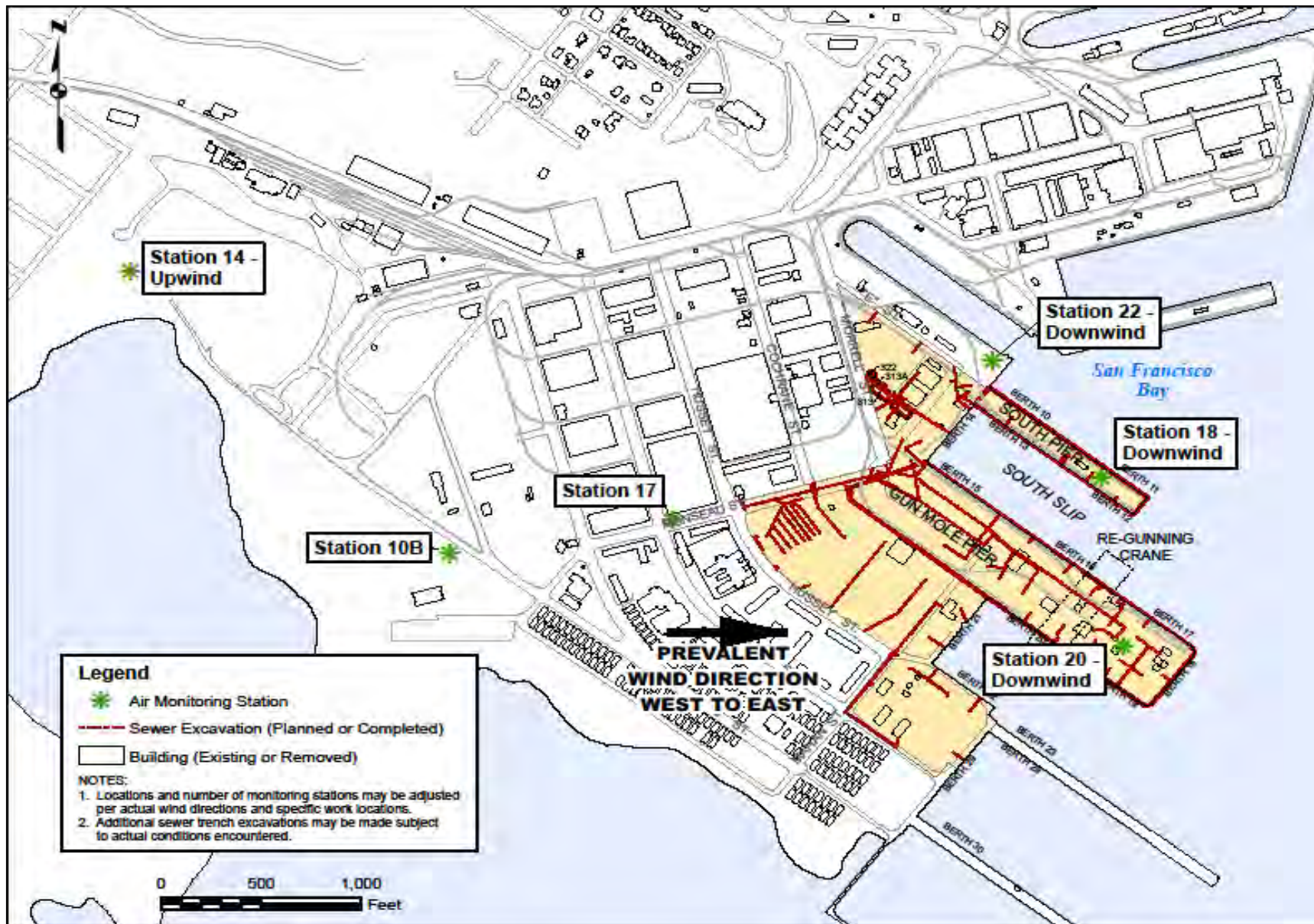
TSP, Mn, and Pb - TSP were sampled in accordance with U.S. EPA's reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR) Part 50, Subpart B. Each sample was collected on a filter over the course of a period not exceeding 24 hours. The mass of TSP was calculated by subtracting the before-run weight of the filter paper from the after-run weight. Mn and Pb were calculated by chemical analysis following an aqueous digestion of the filter paper. Mn was calculated in accordance with one of the IO-3 methods identified in U.S. EPA's *Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air*. Pb was calculated in accordance with a modified EPA Method 12.

PM10 - PM10 was sampled in accordance with U.S. EPA's reference sampling method for PM10 (40 CFR 50, Subpart J). Each sample was collected on a filter over a period not exceeding 24 hours. PM10 was based on a comparison of before and after-use filter weight.

Asbestos - Asbestos was sampled and analyzed in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400, from the *NIOSH Manual of Analytical Methods* (NIOSH 1994). Fibers were collected on three-piece cellulose ester filters fitted with conductive cowlings. Samples were collected over periods not exceeding 12 hours, e.g. primarily during work hours. Count of the asbestos fibers was made by visual examination via polarized microscopy.

NOTE: On April 13, 2011, the upwind air monitoring station for HPNS project CTO-0005 "PCB Hotspot Removal" was vandalized. To continue air monitoring for CTO-0005 and CTO-0006, the CTO-0006 upwind station 17 was relocated prior to work in April 14, 2011 to station 14, and remained there through the end of the work day on May 5, 2011.

NOTE 2: Beginning on July 26, 2012, the upwind PM10 unit was inoperable. Data from the upwind PM10 unit at CTO-0005 was used until CTO-0006 upwind unit was repaired/replaced.



Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1010349-04 | 0004 | 10/06/2010 | 18 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1010349-07 | 0007 | 10/07/2010 | 17 | 2.0 | 356 | 0.7 | 4.5 | <0.0022 |
| 1010349-10 | 0010 | 10/07/2010 | 18 | 2.0 | 392 | 0.8 | 3 | <0.0036 |
| 1010349-13 | 0013 | 10/08/2010 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1010349-16 | 0016 | 10/08/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1010349-19 | 0019 | 10/11/2010 | 17 | 2.0 | 600 | 1.2 | 7 | 0.0028 |
| 1010349-22 | 0022 | 10/11/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1010406-01 | 0025 | 10/12/2010 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1010406-04 | 0028 | 10/12/2010 | 18 | 2.0 | 600 | 1.2 | 11 | 0.0043 |
| 1010406-07 | 0031 | 10/13/2010 | 17 | 2.0 | 600 | 1.2 | 9 | 0.0035 |
| 1010406-10 | 0034 | 10/13/2010 | 18 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1010464-01 | 0037 | 10/14/2010 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1010464-04 | 0040 | 10/14/2010 | 18 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1010464-07 | 0043 | 10/15/2010 | 17 | 2.0 | 476 | 1.0 | 5 | <0.0028 |
| 1010464-10 | 0046 | 10/15/2010 | 18 | 2.0 | 518 | 1.0 | 6 | 0.0028 |
| 1010637-01 | 0049 | 10/18/2010 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1010637-04 | 0052 | 10/18/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1010637-07 | 0055 | 10/19/2010 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1010637-10 | 0058 | 10/19/2010 | 18 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1010637-13 | 0061 | 10/20/2010 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1010637-16 | 0064 | 10/20/2010 | 18 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1010692-01 | 0067 | 10/21/2010 | 17 | 1.9 | 600 | 1.1 | 1 | <0.0022 |
| 1010692-04 | 0070 | 10/21/2010 | 18 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1011030-01 | 0076 | 10/25/2010 | 18 | N/A | N/A | N/A | N/A | N/A |
| 1011030-07 | 0079 | 10/27/2010 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1011030-10 | 0082 | 10/26/2010 | 18 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1011030-13 | 0085 | 10/28/2010 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1011030-16 | 0088 | 10/27/2010 | 18 | 2.0 | 293 | 0.6 | 3 | <0.0022 |
| 1011112-01 | 0091 | 11/01/2010 | 17 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1011112-04 | 0094 | 11/01/2010 | 18 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1011170-01 | 0097 | 11/02/2010 | 17 | 2.0 | 600 | 1.2 | 8 | 0.0031 |
| 1011170-04 | 0100 | 11/02/2010 | 18 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1011170-07 | 0103 | 11/03/2010 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1011170-10 | 0106 | 11/03/2010 | 18 | 2.1 | 600 | 1.3 | 6 | 0.0022 |
| 1011258-01 | 0109 | 11/04/2010 | 17 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1011258-04 | 0112 | 11/04/2010 | 18 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1011258-07 | 0115 | 11/05/2010 | 17 | 2.0 | 418 | 0.8 | ND | <0.0031 |
| 1011258-10 | 0118 | 11/05/2010 | 18 | 2.0 | 413 | 0.8 | 1.5 | <0.0031 |
| 1011258-13 | 0121 | 11/08/2010 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1011258-16 | 0124 | 11/08/2010 | 18 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1011334-01 | 0127 | 11/09/2010 | 17 | 2.1 | 600 | 1.2 | 1 | <0.0022 |
| 1011334-04 | 0130 | 11/09/2010 | 18 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1011334-07 | 0133 | 11/10/2010 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1011334-10 | 0136 | 11/10/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1011376-01 | 0139 | 11/11/2010 | 17 | 2.0 | 1404 | 2.8 | 1.5 | <0.0022 |
| 1011376-04 | 0142 | 11/11/2010 | 18 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1011376-07 | 0145 | 11/12/2010 | 17 | 1.9 | 536 | 1.0 | .5 | <0.0025 |
| 1011376-10 | 0148 | 11/12/2010 | 18 | 2.0 | 343 | 0.7 | ND | <0.0025 |
| 1011484-01 | 0151 | 11/15/2010 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1011484-04 | 0154 | 11/15/2010 | 18 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1011484-07 | 0157 | 11/16/2010 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1011484-10 | 0160 | 11/16/2010 | 18 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1011484-13 | 0163 | 11/17/2010 | 17 | 2.0 | 1442 | 2.9 | 2 | <0.00093 |
| 1011484-16 | 0166 | 11/17/2010 | 18 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1011547-01 | 0169 | 11/18/2010 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1011547-04 | 0172 | 11/18/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1011547-07 | 0175 | 11/19/2010 | 17 | 2.0 | 371 | 0.7 | 2 | <0.0036 |
| 1011547-10 | 0178 | 11/19/2010 | 18 | 2.0 | 369 | 0.7 | 2.5 | <0.0036 |
| 1011649-01 | 0181 | 11/24/2010 | 17 | 2.0 | 424 | 0.8 | 3.5 | <0.0032 |
| 1011649-04 | 0184 | 11/24/2010 | 18 | 2.0 | 397 | 0.8 | 1.5 | <0.0034 |
| 1012048-01 | 0187 | 11/29/2010 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1012048-04 | 0190 | 11/29/2010 | 18 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1012048-07 | 0193 | 11/30/2010 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1012048-10 | 0196 | 11/30/2010 | 18 | 2.0 | 600 | 1.2 | 7 | 0.0028 |
| 1012048-13 | 0199 | 12/01/2010 | 17 | 2.0 | 1442 | 2.9 | 1.5 | <0.00093 |
| 1012048-16 | 0202 | 12/01/2010 | 18 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1012173-01 | 0205 | 12/02/2010 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1012173-04 | 0208 | 12/02/2010 | 18 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1012173-07 | 0211 | 12/06/2010 | 17 | 2.0 | 1447 | 2.9 | 3 | <0.00093 |
| 1012173-10 | 0214 | 12/06/2010 | 18 | 1.8 | 600 | 1.1 | 2 | <0.0025 |
| 1012233-01 | 0217 | 12/07/2010 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1012233-04 | 0220 | 12/07/2010 | 18 | 1.8 | 600 | 1.1 | 2 | <0.0025 |
| 1012325-01 | 0223 | 12/13/2010 | 17 | 1.9 | 600 | 1.1 | .5 | <0.0025 |
| 1012325-04 | 0226 | 12/13/2010 | 18 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1012394-01 | 0229 | 12/14/2010 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1012394-04 | 0232 | 12/14/2010 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1012394-07 | 0235 | 12/15/2010 | 17 | 2.0 | 1442 | 2.9 | 2.5 | <0.00093 |
| 1012394-10 | 0238 | 12/15/2010 | 18 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1012451-01 | 0241 | 12/16/2010 | 17 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1012451-04 | 0244 | 12/16/2010 | 18 | 2.1 | 600 | 1.3 | 2 | <0.0021 |
| 1101090-01 | 0247 | 01/03/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1101090-04 | 0250 | 01/03/2011 | 18 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1101090-07 | 0253 | 01/04/2011 | 17 | 2.4 | 600 | 1.4 | 2.5 | <0.0019 |
| 1101090-10 | 0256 | 01/04/2011 | 18 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1101090-13 | 0259 | 01/05/2011 | 17 | 2.0 | 1421 | 2.8 | 1.5 | <0.00096 |
| 1101090-16 | 0262 | 01/05/2011 | 20 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1101152-01 | 0265 | 01/06/2011 | 17 | 2.1 | 600 | 1.3 | 3 | <0.0021 |
| 1101152-04 | 0268 | 01/06/2011 | 20 | 2.0 | 600 | 1.2 | 2 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1101152-07 | 0271 | 01/07/2011 | 17 | 2.0 | 509 | 1.0 | 2.5 | <0.0027 |
| 1101152-10 | 0274 | 01/07/2011 | 20 | 2.0 | 515 | 1.0 | 2 | <0.0027 |
| 1101221-01 | 0277 | 01/10/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1101221-03 | 0280 | 01/10/2011 | 20 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1101221-06 | 0283 | 01/11/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1101221-09 | 0286 | 01/11/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1101221-12 | 0289 | 01/12/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1101221-15 | 0292 | 01/12/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1101323-01 | 0295 | 01/13/2011 | 17 | 2.0 | 600 | 1.2 | 1.2 | <0.0022 |
| 1101323-04 | 0298 | 01/13/2011 | 20 | 2.0 | 600 | 1.2 | 1.2 | <0.0022 |
| 1101323-07 | 0301 | 01/14/2011 | 17 | 2.0 | 434 | 0.9 | 0.9 | <0.003 |
| 1101323-10 | 0304 | 01/14/2011 | 20 | 2.0 | 404 | 0.8 | 0.8 | <0.0034 |
| 1101323-13 | 0307 | 01/17/2011 | 17 | 2.3 | 600 | 1.4 | 3 | <0.0019 |
| 1101323-16 | 0310 | 01/17/2011 | 20 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1101429-01 | 0313 | 01/18/2011 | 17 | 2.1 | 600 | 1.2 | 2 | <0.0022 |
| 1101429-04 | 0316 | 01/18/2011 | 20 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1101429-07 | 0319 | 01/19/2011 | 17 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1101429-10 | 0322 | 01/19/2011 | 20 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1101447-01 | 0325 | 01/20/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1101447-04 | 0328 | 01/20/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1101447-07 | 0331 | 01/21/2011 | 17 | 2.0 | 451 | 0.9 | 4 | <0.003 |
| 1101447-10 | 0334 | 01/21/2011 | 20 | 2.1 | 420 | 0.9 | 3 | <0.003 |
| 1101561-01 | 0337 | 01/25/2011 | 17 | 2.1 | 600 | 1.3 | 7 | 0.0025 |
| 1101561-04 | 0340 | 01/25/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1101561-07 | 0343 | 01/26/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1101561-10 | 0346 | 01/26/2011 | 20 | 2.1 | 600 | 1.3 | 3 | <0.0021 |
| 1102066-01 | 0349 | 01/27/2011 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1102066-04 | 0352 | 01/27/2011 | 20 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1102066-07 | 0355 | 01/28/2011 | 17 | 2.0 | 420 | 0.8 | 4 | <0.0034 |
| 1102066-10 | 0358 | 01/28/2011 | 20 | 2.0 | 380 | 0.8 | 1.5 | <0.0034 |
| 1102164-01 | 0361 | 01/31/2011 | 17 | 2.2 | 600 | 1.3 | 2 | <0.0021 |
| 1102164-04 | 0364 | 01/31/2011 | 20 | 2.1 | 600 | 1.3 | 2 | <0.0021 |
| 1102164-07 | 0367 | 02/01/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1102164-10 | 0370 | 02/01/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1102164-13 | 0373 | 02/02/2011 | 17 | 2.1 | 600 | 1.3 | 8 | 0.0029 |
| 1102164-16 | 0376 | 02/02/2011 | 20 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1102164-19 | 0379 | 02/03/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1102164-22 | 0382 | 02/03/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1102271-01 | 0385 | 02/04/2011 | 17 | 2.2 | 600 | 1.3 | 6 | 0.0022 |
| 1102271-04 | 0388 | 02/04/2011 | 20 | 2.2 | 370 | 0.8 | 3.5 | <0.0034 |
| 1102271-07 | 0391 | 02/07/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1102271-10 | 0394 | 02/07/2011 | 20 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1102271-13 | 0397 | 02/08/2011 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1102271-16 | 0400 | 02/08/2011 | 20 | 2.1 | 600 | 1.3 | 5 | <0.0021 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1102465-01 | 0403 | 02/09/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1102465-04 | 0406 | 02/09/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1102465-07 | 0409 | 02/10/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1102465-10 | 0412 | 02/10/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1102465-13 | 0415 | 02/11/2011 | 17 | 2.0 | 422 | 0.8 | 4.5 | <0.0034 |
| 1102465-16 | 0418 | 02/11/2011 | 20 | 1.9 | 382 | 0.7 | 1.5 | <0.0039 |
| 1102668-01 | 0421 | 02/21/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1102668-04 | 0424 | 02/21/2011 | 20 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1102668-07 | 0427 | 02/22/2011 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1102668-10 | 0430 | 02/22/2011 | 20 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1102668-13 | 0433 | 02/23/2011 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1102668-16 | 0436 | 02/23/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1103069-01 | 0439 | 02/28/2011 | 17 | 2.1 | 600 | 1.3 | 7 | 0.0025 |
| 1103069-04 | 0442 | 02/28/2011 | 20 | 2.2 | 600 | 1.3 | 3 | <0.0021 |
| 1103069-07 | 0445 | 03/01/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1103069-10 | 0448 | 03/01/2011 | 20 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1103188-01 | 0451 | 03/03/2011 | 17 | 2.2 | 600 | 1.3 | 5.5 | <0.0021 |
| 1103188-04 | 0454 | 03/03/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1103188-07 | 0457 | 03/04/2011 | 17 | 2.0 | 405 | 0.8 | 2.5 | <0.0034 |
| 1103188-10 | 0460 | 03/04/2011 | 20 | 1.8 | 365 | 0.6 | 4 | <0.0045 |
| 1103545-01 | 0463 | 03/07/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1103545-04 | 0466 | 03/07/2011 | 20 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1103545-07 | 0469 | 03/08/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1103545-10 | 0472 | 03/08/2011 | 20 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1103545-13 | 0475 | 03/09/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1103545-16 | 0478 | 03/09/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1103545-19 | 0481 | 03/10/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1103545-22 | 0484 | 03/10/2011 | 20 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1103545-25 | 0487 | 03/11/2011 | 17 | 2.0 | 425 | 0.9 | 2.5 | <0.003 |
| 1103545-28 | 0490 | 03/11/2011 | 20 | 2.0 | 380 | 0.8 | 3.5 | <0.0034 |
| 1103545-31 | 0493 | 03/17/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1103545-34 | 0496 | 03/17/2011 | 20 | 2.1 | 600 | 1.3 | 1.5 | <0.0021 |
| 1103791-01 | 0499 | 03/28/2011 | 17 | 2.1 | 600 | 1.3 | 2.5 | <0.0021 |
| 1103791-04 | 0502 | 03/28/2011 | 20 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1103791-07 | 0505 | 03/29/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1103791-10 | 0508 | 03/29/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1104064-01 | 0511 | 03/30/2011 | 17 | 2.1 | 600 | 1.3 | 8 | 0.0029 |
| 1104064-04 | 0514 | 03/30/2011 | 20 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1104064-07 | 0517 | 03/31/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1104064-10 | 0520 | 03/31/2011 | 20 | 2.0 | 600 | 1.2 | 8.5 | 0.0033 |
| 1104064-13 | 0523 | 04/01/2011 | 17 | 2.3 | 385 | 0.9 | 5.5 | <0.003 |
| 1104064-16 | 0526 | 04/01/2011 | 20 | 2.0 | 412 | 0.8 | 7.5 | 0.0044 |
| 1104167-01 | 0529 | 04/04/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1104167-04 | 0532 | 04/04/2011 | 20 | 2.0 | 412 | 0.8 | 7.5 | 0.003 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1104167-07 | 0535 | 04/05/2011 | 17 | 2.3 | 600 | 1.4 | 6.5 | 0.0022 |
| 1104167-10 | 0538 | 04/05/2011 | 20 | 2.0 | 600 | 1.2 | 7 | 0.0028 |
| 1104167-13 | 0541 | 04/06/2011 | 17 | 2.0 | 1368 | 2.7 | 3.5 | <0.001 |
| 1104167-16 | 0544 | 04/06/2011 | 20 | 2.0 | 600 | 1.2 | 13.5 | 0.0053 |
| 1104340-01 | 0547 | 04/08/2011 | 17 | 1.9 | 435 | 0.8 | 2.5 | <0.0034 |
| 1104340-04 | 0550 | 04/08/2011 | 20 | 2.0 | 387 | 0.8 | 6 | 0.0035 |
| 1104340-07 | 0553 | 04/11/2011 | 17 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1104340-10 | 0556 | 04/11/2011 | 20 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1104340-13 | 0559 | 04/12/2011 | 17 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1104340-16 | 0562 | 04/12/2011 | 20 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1104472-01 | 0565 | 04/13/2011 | 14 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1104472-04 | 0568 | 04/13/2011 | 20 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1104472-07 | 0571 | 04/14/2011 | 14 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1104472-10 | 0574 | 04/14/2011 | 20 | 2.1 | 600 | 1.3 | 4 | <0.0021 |
| 1104472-13 | 0577 | 04/15/2011 | 14 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1104472-16 | 0580 | 04/15/2011 | 20 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1104472-19 | 0583 | 04/16/2011 | 14 | 2.0 | 600 | 1.2 | 3 | <0.0039 |
| 1104472-22 | 0586 | 04/16/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0034 |
| 1104472-25 | 0589 | 04/18/2011 | 14 | 2.0 | 600 | 1.2 | 7 | 0.0028 |
| 1104472-28 | 0592 | 04/18/2011 | 20 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1104642-01 | 0595 | 04/19/2011 | 14 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1104642-04 | 0598 | 04/19/2011 | 20 | 1.9 | 600 | 1.1 | 1 | <0.0025 |
| 1104642-07 | 0601 | 04/20/2011 | 14 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1104642-10 | 0604 | 04/20/2011 | 20 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1104642-13 | 0607 | 04/21/2011 | 14 | 2.0 | 410 | 0.8 | 2 | <0.0034 |
| 1104713-01 | 0613 | 04/26/2011 | 14 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1104713-04 | 0616 | 04/26/2011 | 20 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1104713-07 | 0619 | 04/27/2011 | 14 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1104713-10 | 0622 | 04/27/2011 | 20 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1105059-01 | 0625 | 04/28/2011 | 14 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1105059-04 | 0628 | 04/28/2011 | 20 | 1.9 | 600 | 1.1 | 7.5 | 0.0032 |
| 1105059-07 | 0631 | 04/29/2011 | 14 | 2.0 | 470 | 0.9 | 3 | <0.003 |
| 1105059-10 | 0634 | 04/29/2011 | 20 | 2.0 | 372 | 0.7 | 2.5 | <0.0039 |
| 1105193-01 | 0637 | 05/02/2011 | 14 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1105193-04 | 0640 | 05/02/2011 | 20 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1105193-07 | 0643 | 05/03/2011 | 14 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1105193-10 | 0646 | 05/03/2011 | 20 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1105193-13 | 0649 | 05/04/2011 | 14 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1105193-16 | 0652 | 05/04/2011 | 20 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1105193-19 | 0655 | 05/05/2011 | 14 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1105193-22 | 0658 | 05/05/2011 | 20 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1109373-01 | 0661 | 09/12/2011 | 17 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1109373-04 | 0664 | 09/12/2011 | 22 | 2.0 | 600 | 2.3 | 6 | 0.0023 |
| 1109373-07 | 0667 | 09/13/2011 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1109373-10 | 0670 | 09/13/2011 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1109373-13 | 0673 | 09/14/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1109373-16 | 0676 | 09/14/2011 | 22 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1109536-01 | 0679 | 09/15/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1109536-04 | 0682 | 09/15/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1109536-07 | 0685 | 09/16/2011 | 17 | 2.0 | 420 | 0.8 | 5.5 | <0.0034 |
| 1109536-10 | 0688 | 09/16/2011 | 22 | 2.0 | 383 | 0.8 | 2.5 | <0.0034 |
| 1109538-01 | 0691 | 09/19/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1109538-04 | 0694 | 09/19/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1109538-07 | 0697 | 09/20/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1109538-10 | 0700 | 09/20/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1109538-13 | 0703 | 09/21/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1109538-16 | 0706 | 09/21/2011 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1109592-01 | 0709 | 09/22/2011 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1109592-04 | 0712 | 09/22/2011 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1109592-07 | 0715 | 09/23/2011 | 17 | 2.0 | 420 | 0.8 | .5 | <0.0034 |
| 1109592-10 | 0718 | 09/23/2011 | 22 | 2.0 | 416 | 0.8 | 3 | <0.0034 |
| 1109701-01 | 0721 | 09/26/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1109701-04 | 0724 | 09/26/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1109701-07 | 0727 | 09/27/2011 | 17 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1109701-10 | 0730 | 09/27/2011 | 22 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1109701-13 | 0733 | 09/28/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1109701-16 | 0736 | 09/28/2011 | 22 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1110043-01 | 0739 | 09/29/2011 | 17 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1110043-04 | 0742 | 09/29/2011 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1110043-07 | 0745 | 09/30/2011 | 17 | 2.0 | 415 | 0.8 | 1.5 | <0.0034 |
| 1110043-10 | 0748 | 09/30/2011 | 22 | 2.0 | 414 | 0.8 | .5 | <0.0034 |
| 1110175-01 | 0751 | 10/03/2011 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1110175-04 | 0754 | 10/03/2011 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1110605-01 | 0757 | 10/20/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1110605-04 | 0760 | 10/20/2011 | 22 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1110605-07 | 0763 | 10/21/2011 | 17 | 2.0 | 382 | 0.8 | 1.5 | <0.0034 |
| 1110605-10 | 0766 | 10/21/2011 | 22 | 2.0 | 402 | 0.8 | 3.5 | <0.0034 |
| 1110605-13 | 0769 | 10/24/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1110605-16 | 0772 | 10/24/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1110711-01 | 0775 | 10/25/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1110711-04 | 0778 | 10/25/2011 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1110711-07 | 0781 | 10/26/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1110711-10 | 0784 | 10/26/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1111056-01 | 0787 | 10/27/2011 | 17 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1111056-04 | 0790 | 10/27/2011 | 22 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1111056-07 | 0793 | 10/28/2011 | 17 | 2.0 | 423 | 1.2 | 7 | 0.0041 |
| 1111056-10 | 0796 | 10/28/2011 | 22 | 2.0 | 419 | 1.2 | 3 | <0.0034 |
| 1111056-13 | 0799 | 10/31/2011 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1111056-16 | 0802 | 10/31/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1111122-01 | 0805 | 11/01/2011 | 17 | 2.0 | 600 | 1.2 | 8.5 | 0.0033 |
| 1111122-04 | 0808 | 11/01/2011 | 22 | 2.0 | 600 | 1.2 | 9 | 0.0035 |
| 1111122-07 | 0811 | 11/02/2011 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1111122-10 | 0814 | 11/02/2011 | 22 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1111200-01 | 0817 | 11/03/2011 | 17 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1111200-04 | 0820 | 11/03/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1111290-01 | 0823 | 11/07/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1111290-04 | 0826 | 11/07/2011 | 22 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1111290-07 | 0829 | 11/08/2011 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1111290-10 | 0832 | 11/08/2011 | 22 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1111290-13 | 0835 | 11/09/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1111290-16 | 0838 | 11/09/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1111349-01 | 0841 | 11/10/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1111349-04 | 0844 | 11/10/2011 | 22 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1111349-07 | 0847 | 11/11/2011 | CTO5 10B | 2.0 | 460 | 0.9 | 2 | <0.003 |
| 1111349-10 | 0850 | 11/11/2011 | 22 | 2.0 | 474 | 0.9 | 1 | <0.003 |
| 1111463-01 | 0853 | 11/14/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1111463-04 | 0856 | 11/14/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1111463-07 | 0859 | 11/15/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1111463-10 | 0862 | 11/15/2011 | 22 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1111463-13 | 0865 | 11/16/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1111463-16 | 0868 | 11/16/2011 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1111569-01 | 0871 | 11/17/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1111569-04 | 0874 | 11/17/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1111569-07 | 0877 | 11/21/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1111569-10 | 0880 | 11/21/2011 | 22 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1112042-01 | 0883 | 11/28/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1112042-04 | 0886 | 11/28/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1112042-07 | 0889 | 11/29/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1112042-10 | 0892 | 11/29/2011 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1112042-13 | 0895 | 11/30/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1112042-16 | 0898 | 11/30/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1112128-01 | 0901 | 12/01/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1112128-04 | 0904 | 12/01/2011 | 22 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1112128-07 | 0907 | 12/02/2011 | CTO5 10B | 2.0 | 379 | 0.8 | 4 | <0.0034 |
| 1112128-10 | 0910 | 12/02/2011 | 22 | 2.0 | 406 | 0.8 | 3 | <0.0034 |
| 1112128-13 | 0913 | 12/05/2011 | CTO5 10B | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1112128-16 | 0916 | 12/05/2011 | 22 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1112199-01 | 0919 | 12/06/2011 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1112199-04 | 0922 | 12/06/2011 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1112199-07 | 0925 | 12/07/2011 | 17 | 2.0 | 1517 | 3.0 | 6 | 0.00094 |
| 1112199-10 | 0928 | 12/07/2011 | 22 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1112269-01 | 0931 | 12/08/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1112269-04 | 0934 | 12/08/2011 | 22 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1112374-01 | 0943 | 12/13/2011 | 17 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1112374-04 | 0946 | 12/13/2011 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1112374-07 | 0949 | 12/14/2011 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1112374-10 | 0952 | 12/14/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1112502-01 | 0955 | 12/16/2011 | 17 | 2.0 | 478 | 1.0 | 2.5 | <0.0027 |
| 1112502-04 | 0958 | 12/16/2011 | 22 | 2.0 | 477 | 1.0 | 2 | <0.0027 |
| 1112574-04 | 0970 | 12/20/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1112574-07 | 0973 | 12/21/2011 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1112574-10 | 0976 | 12/21/2011 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1112574-13 | 0979 | 12/22/2011 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1112574-16 | 0982 | 12/22/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1112574-19 | 0985 | 12/27/2011 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1112574-22 | 0988 | 12/27/2011 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201077-01 | 0991 | 12/28/2011 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1201077-04 | 0994 | 12/28/2011 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1201077-07 | 0997 | 12/29/2011 | 17 | 2.0 | 426 | 0.9 | .5 | <0.003 |
| 1201077-08 | 1000 | 12/29/2011 | 22 | 2.0 | 423 | 0.8 | ND | <0.0034 |
| 1201077-11 | 1003 | 01/03/2012 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1201077-14 | 1006 | 01/03/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201077-17 | 1009 | 01/04/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201077-20 | 1012 | 01/04/2012 | 22 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1201130-01 | 1015 | 01/05/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201130-04 | 1018 | 01/05/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1201204-01 | 1021 | 01/09/2012 | 17 | 2.0 | 600 | 1.2 | 8 | 0.0031 |
| 1201204-04 | 1024 | 01/09/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201204-07 | 1027 | 01/10/2012 | 17 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1201204-10 | 1030 | 01/10/2012 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1201204-13 | 1033 | 01/11/2012 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201204-16 | 1036 | 01/11/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201249-01 | 1039 | 01/12/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201249-04 | 1042 | 01/12/2012 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1201249-07 | 1045 | 01/13/2012 | 17 | 2.0 | 472 | 0.9 | 2 | <0.003 |
| 1201249-10 | 1048 | 01/13/2012 | 22 | 2.0 | 458 | 0.9 | 3 | <0.003 |
| 1201249-10 | 1048 | 01/13/2012 | 22 | 2.0 | 458 | 0.9 | 3 | <0.003 |
| 1201342-01 | 1051 | 01/16/2012 | 17 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1201342-04 | 1054 | 01/16/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1201342-07 | 1057 | 01/17/2012 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201342-10 | 1060 | 01/17/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201342-13 | 1063 | 01/18/2012 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1201342-16 | 1066 | 01/18/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201497-01 | 1069 | 01/19/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1201497-04 | 1072 | 01/19/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1201497-07 | 1075 | 01/24/2012 | 17 | 2.0 | 421 | 0.8 | 1.5 | <0.0034 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1201497-10 | 1078 | 01/24/2012 | 22 | 2.0 | 417 | 0.8 | 4 | <0.0034 |
| 1201581-01 | 1087 | 01/26/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1201581-04 | 1090 | 01/26/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1201581-07 | 1093 | 01/27/2012 | 17 | 2.0 | 424 | 0.8 | 2 | <0.0034 |
| 1201581-10 | 1096 | 01/27/2012 | 22 | 2.0 | 422 | 0.8 | 1.5 | <0.0034 |
| 1201581-13 | 1099 | 01/28/2012 | 17 | 2.0 | 414 | 0.8 | 1 | <0.0034 |
| 1201581-16 | 1102 | 01/28/2012 | 22 | 2.0 | 418 | 0.8 | 2 | <0.0034 |
| 1202082-01 | 1105 | 01/30/2012 | 17 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1202082-04 | 1108 | 01/30/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1202082-07 | 1111 | 01/31/2012 | 17 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1202082-10 | 1114 | 01/31/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1202124-01 | 1117 | 02/02/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1202124-04 | 1120 | 02/02/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1202124-07 | 1123 | 02/03/2012 | 17 | 2.0 | 428 | 0.9 | 3 | <0.003 |
| 1202124-10 | 1126 | 02/03/2012 | 22 | 2.0 | 413 | 0.8 | ND | <0.0034 |
| 1202220-01 | 1129 | 02/08/2012 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1202220-04 | 1132 | 02/08/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1202279-01 | 1135 | 02/09/2012 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1202279-04 | 1138 | 02/09/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1202279-07 | 1141 | 02/10/2012 | 17 | 2.0 | 409 | 0.8 | 1 | <0.0034 |
| 1202279-10 | 1144 | 02/10/2012 | 22 | 2.0 | 370 | 0.7 | 2 | <0.0039 |
| 1202389-01 | 1147 | 02/15/2012 | 17 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1202389-04 | 1150 | 02/15/2012 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1202450-01 | 1153 | 02/16/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1202450-04 | 1156 | 02/16/2012 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1202631-01 | 1159 | 02/23/2012 | 17 | 2.0 | 600 | 1.2 | 10 | 0.0039 |
| 1202631-04 | 1162 | 02/23/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1203404-01 | 1177 | 03/12/2012 | 17 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1203404-04 | 1180 | 03/12/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1203554-01 | 1183 | 03/20/2012 | 17 | 2.0 | 678 | 1.4 | 3 | <0.0019 |
| 1203554-04 | 1186 | 03/20/2012 | 22 | 2.0 | 678 | 1.4 | 3.5 | <0.0019 |
| 1205678-01 | 1198 | 05/21/2012 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1205678-04 | 1201 | 05/21/2012 | 17 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1205678-07 | 1204 | 05/22/2012 | 22 | 2.0 | 600 | 1.2 | 8 | 0.0031 |
| 1205678-10 | 1207 | 05/22/2012 | 17 | 2.0 | 600 | 1.2 | 8.5 | 0.0033 |
| 1205678-13 | 1210 | 05/23/2012 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1205678-16 | 1213 | 05/23/2012 | 17 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1205678-18 | 1216 | 05/24/2012 | 22 | 2.0 | 600 | 1.2 | 8 | 0.0031 |
| 1205678-21 | 1219 | 05/24/2012 | 17 | 2.0 | 600 | 1.2 | 9.8 | 0.0031 |
| 1205741-01 | 1231 | 05/25/2012 | 17 | 2.0 | 410 | 0.8 | 3.5 | <0.0034 |
| 1205741-03 | 1234 | 05/25/2012 | 22 | 2.0 | 407 | 0.8 | 1 | <0.0034 |
| 1206030-01 | 1228 | 05/29/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1206030-04 | 1237 | 05/29/2012 | 17 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1206030-07 | 1234 | 05/30/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1206030-09 | 1243 | 05/30/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1206118-01 | 1240 | 05/31/2012 | 22 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1206118-04 | 1246 | 05/31/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0039 |
| 1206118-07 | 1249 | 06/01/2012 | 22 | 2.0 | 374 | 0.7 | 3 | <0.0022 |
| 1206118-10 | 1255 | 06/01/2012 | 17 | 2.0 | 402 | 0.8 | 2.5 | <0.0034 |
| 1206224-01 | 1258 | 06/05/2012 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1206224-04 | 1264 | 06/06/2012 | 17 | 2.1 | 600 | 1.3 | 1 | <0.0021 |
| 1206224-07 | 1267 | 06/05/2012 | 22 | 2.0 | 600 | 1.2 | 7 | 0.0028 |
| 1206301-01 | 1270 | 06/07/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1206301-07 | 1279 | 06/07/2012 | 17 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1206301-04 | 1276 | 06/08/2012 | 22 | 2.0 | 405 | 0.8 | 2.5 | <0.0034 |
| 1206301-10 | 1285 | 06/08/2012 | 17 | 2.0 | 407 | 0.8 | 4 | <0.0034 |
| 1206224-10 | 1273 | 06/06/2012 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1206447-01 | 1282 | 06/11/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1206447-04 | 1291 | 06/11/2012 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1206447-07 | 1288 | 06/12/2012 | 22 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1206447-10 | 1297 | 06/12/2012 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1206447-13 | 1294 | 06/13/2012 | 22 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1206447-16 | 1303 | 06/13/2012 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1206549-01 | 1300 | 06/14/2012 | 22 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1206549-04 | 1306 | 06/15/2012 | 17 | 2.0 | 356 | 1.2 | 3 | <0.0039 |
| 1206549-07 | 1309 | 06/14/2012 | 22 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1206549-10 | 1315 | 06/15/2012 | 17 | 2.0 | 360 | 1.2 | 2.5 | <0.0039 |
| 1206638-01 | 1321 | 06/18/2012 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1206638-04 | 1312 | 06/18/2012 | 22 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1206638-07 | 1327 | 06/19/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1206638-10 | 1318 | 06/19/2012 | 22 | 2.0 | 600 | 1.2 | 5 | <0.0022 |
| 1206638-13 | 1333 | 06/20/2012 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1206638-16 | 1324 | 06/20/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1206715-01 | 1330 | 06/21/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1206715-04 | 1336 | 06/22/2012 | 22 | 2.0 | 411 | 0.8 | 3.5 | <0.0034 |
| 1206715-07 | 1339 | 06/21/2012 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1206715-10 | 1345 | 06/22/2012 | 17 | 2.0 | 421 | 0.8 | 5 | <0.0034 |
| 1206774-01 | 1351 | 06/25/2012 | 17 | 2.0 | 600 | 1.2 | 5.5 | <0.0022 |
| 1206774-04 | 1342 | 06/25/2012 | 22 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1206774-07 | 1357 | 06/26/2012 | 17 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1206774-10 | 1348 | 06/26/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1206774-13 | 1363 | 06/27/2012 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1206774-16 | 1354 | 06/27/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1207043-01 | 1360 | 06/28/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1207043-04 | 1369 | 06/28/2012 | 22 | 2.0 | 600 | 1.2 | 6.5 | 0.0026 |
| 1207043-07 | 1366 | 06/29/2012 | 17 | 2.0 | 305 | 0.6 | 2 | <0.0045 |
| 1207043-10 | 1375 | 06/29/2012 | 22 | 2.0 | 305 | 0.6 | 2 | <0.0045 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1207099-01 | 1381 | 07/02/2012 | 17 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1207099-04 | 1378 | 07/02/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1207261-01 | 1387 | 07/09/2012 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1207261-04 | 1390 | 07/09/2012 | 22 | 2.0 | 600 | 1.2 | 8 | 0.0031 |
| 1207261-07 | 1384 | 07/10/2012 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0018 |
| 1207261-10 | 1393 | 07/10/2012 | 22 | 2.5 | 600 | 1.5 | 4 | <0.0018 |
| 1207381-01 | 1396 | 07/11/2012 | 17 | 2.5 | 600 | 1.5 | 5 | <0.0018 |
| 1207381-04 | 1402 | 07/12/2012 | 17 | 2.3 | 600 | 1.4 | 4.5 | <0.0019 |
| 1207381-07 | 1399 | 07/11/2012 | 22 | 3.5 | 600 | 2.1 | 3.5 | <0.0013 |
| 1207381-10 | 1405 | 07/12/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1207381-13 | 1408 | 07/13/2012 | 17 | 2.5 | 312 | 0.8 | 2.5 | <0.0034 |
| 1207381-16 | 1411 | 07/13/2012 | 22 | 3.3 | 317 | 1.0 | .5 | <0.0027 |
| 1207500-01 | 1414 | 07/16/2012 | 17 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1207500-04 | 1417 | 07/16/2012 | 22 | 2.0 | 600 | 1.2 | 4.5 | <0.0022 |
| 1207500-07 | 1420 | 07/17/2012 | 17 | 2.5 | 600 | 1.5 | 4.5 | <0.0018 |
| 1207500-10 | 1423 | 07/17/2012 | 22 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1207500-13 | 1426 | 07/18/2012 | 17 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1207500-15 | 1429 | 07/18/2012 | 22 | 2.5 | 600 | 1.5 | .5 | <0.0018 |
| 1207543-01 | 1432 | 07/19/2012 | 17 | 3.0 | 600 | 1.8 | 2 | <0.0015 |
| 1207543-03 | 1435 | 07/19/2012 | 22 | 2.3 | 600 | 1.4 | 1 | <0.0019 |
| 1207543-06 | 1438 | 07/20/2012 | 17 | 2.5 | 365 | 0.9 | 1 | <0.003 |
| 1207543-09 | 1441 | 07/20/2012 | 22 | 2.5 | 403 | 1.0 | ND | <0.0027 |
| 1207632-01 | 1444 | 07/23/2012 | 17 | 2.0 | 600 | 1.2 | 12 | 0.0047 |
| 1207632-04 | 1447 | 07/23/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1207632-07 | 1450 | 07/24/2012 | 17 | 2.0 | 600 | 1.2 | 8.5 | 0.0033 |
| 1207632-10 | 1453 | 07/24/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1207632-13 | 1456 | 07/25/2012 | 17 | 2.3 | 600 | 1.4 | 3.5 | <0.0019 |
| 1207632-16 | 1459 | 07/25/2012 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1207722-01 | 1462 | 07/26/2012 | 17 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1207722-03 | 1465 | 07/26/2012 | 22 | 2.3 | 600 | 1.4 | 3.5 | <0.0019 |
| 1207722-06 | 1468 | 07/27/2012 | 17 | 2.3 | 454 | 1.0 | 3 | <0.0027 |
| 1207722-08 | 1471 | 07/27/2012 | 22 | 2.5 | 434 | 1.1 | 2.5 | <0.0025 |
| 1208110-01 | 1474 | 07/30/2012 | 17 | 2.5 | 600 | 1.5 | 1 | <0.0018 |
| 1208110-03 | 1477 | 07/30/2012 | 22 | 2.5 | 600 | 1.5 | 2 | <0.0018 |
| 1208110-06 | 1480 | 07/31/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1208110-08 | 1483 | 07/31/2012 | 22 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1208110-11 | 1486 | 08/01/2012 | 17 | 2.5 | 600 | 1.5 | 4.5 | <0.0018 |
| 1208110-13 | 1489 | 08/01/2012 | 22 | 2.5 | 600 | 1.5 | 1 | <0.0018 |
| 1208144-01 | 1492 | 08/02/2012 | 17 | 2.5 | 600 | 1.5 | 6.5 | 0.0021 |
| 1208144-03 | 1495 | 08/02/2012 | 22 | 2.5 | 600 | 1.5 | 6 | 0.0019 |
| 1208144-06 | 1498 | 08/03/2012 | 17 | 2.5 | 413 | 1.0 | 1.5 | <0.0027 |
| 1208144-08 | 1501 | 08/03/2012 | 22 | 2.5 | 422 | 1.1 | 1.5 | <0.0025 |
| 1208252-01 | 1504 | 08/06/2012 | 17 | 2.5 | 600 | 1.5 | 1.5 | <0.0018 |
| 1208252-03 | 1507 | 08/06/2012 | 22 | 2.5 | 600 | 1.5 | 1 | <0.0018 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1208252-06 | 1510 | 08/07/2012 | 17 | 2.5 | 600 | 1.5 | 4.5 | <0.0018 |
| 1208252-08 | 1513 | 08/07/2012 | 22 | 2.5 | 600 | 1.5 | 3.5 | <0.0018 |
| 1208252-11 | 1516 | 08/08/2012 | 17 | 2.5 | 600 | 1.5 | 2 | <0.0018 |
| 1208252-13 | 1519 | 08/08/2012 | 22 | 2.5 | 600 | 1.5 | 2.5 | <0.0022 |
| 1208317-01 | 1522 | 08/09/2012 | 17 | 2.3 | 600 | 1.4 | 1 | <0.0019 |
| 1208317-03 | 1525 | 08/09/2012 | 22 | 2.3 | 600 | 1.4 | 2.5 | <0.0019 |
| 1208317-06 | 1528 | 08/10/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1208317-08 | 1531 | 08/10/2012 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1208400-01 | 1534 | 08/13/2012 | 17 | 2.5 | 600 | 1.5 | 1 | <0.0018 |
| 1208400-02 | 1537 | 08/13/2012 | 22 | 2.3 | 600 | 1.4 | .5 | <0.0019 |
| 1208400-03 | 1540 | 08/14/2012 | 17 | 2.3 | 600 | 1.4 | .5 | <0.0019 |
| 1208400-05 | 1543 | 08/14/2012 | 22 | 2.3 | 600 | 1.4 | 1 | <0.0019 |
| 1208400-08 | 1546 | 08/15/2012 | 17 | 2.3 | 600 | 1.4 | 3 | <0.0022 |
| 1208400-10 | 1549 | 08/15/2012 | 22 | 2.3 | 600 | 1.4 | 1 | <0.0019 |
| 1208477-01 | 1552 | 08/16/2012 | 17 | 2.3 | 600 | 1.4 | 7.5 | 0.0025 |
| 1208477-03 | 1555 | 08/16/2012 | 22 | 2.3 | 600 | 1.4 | 5 | <0.0019 |
| 1208477-06 | 1558 | 08/17/2012 | 17 | 2.5 | 419 | 1.0 | 3.5 | <0.0027 |
| 1208477-08 | 1561 | 08/17/2012 | 22 | 2.5 | 407 | 1.0 | 1 | <0.0027 |
| 1208565-01 | 1564 | 08/20/2012 | 17 | 2.0 | 600 | 1.2 | 3.5 | <0.0022 |
| 1208565-02 | 1567 | 08/20/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1208565-05 | 1570 | 08/21/2012 | 17 | 2.5 | 600 | 1.5 | 2 | <0.0018 |
| 1208565-07 | 1573 | 08/21/2012 | 22 | 2.8 | 600 | 1.7 | .5 | <0.0016 |
| 1208565-10 | 1576 | 08/22/2012 | 17 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1208565-12 | 1579 | 08/22/2012 | 22 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1208608-01 | 1582 | 08/23/2012 | 17 | 2.5 | 600 | 1.5 | 1.5 | <0.0018 |
| 1208608-03 | 1585 | 08/23/2012 | 22 | 2.5 | 600 | 1.5 | 2 | <0.0018 |
| 1208608-06 | 1588 | 08/24/2012 | 17 | 3.0 | 339 | 1.0 | 3 | <0.0027 |
| 1208608-08 | 1591 | 08/24/2012 | 22 | 2.5 | 331 | 0.8 | 3 | <0.0034 |
| 1208710-01 | 1594 | 08/27/2012 | 17 | 2.3 | 600 | 1.4 | 2.5 | <0.0019 |
| 1208710-03 | 1597 | 08/27/2012 | 22 | 2.5 | 600 | 1.5 | 5 | <0.0018 |
| 1208710-06 | 1600 | 08/28/2012 | 17 | 2.5 | 600 | 1.5 | 2 | <0.0018 |
| 1208710-08 | 1603 | 08/28/2012 | 22 | 2.5 | 600 | 1.5 | 4 | <0.0018 |
| 1208710-11 | 1606 | 08/29/2012 | 17 | 2.0 | 600 | 1.2 | 6 | 0.0023 |
| 1208710-13 | 1609 | 08/29/2012 | 22 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209108-01 | 1612 | 08/30/2012 | 17 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209108-03 | 1615 | 08/30/2012 | 22 | 2.3 | 600 | 1.4 | 4.5 | <0.0019 |
| 1209108-06 | 1618 | 08/31/2012 | 17 | 2.5 | 172 | 0.4 | .5 | <0.0067 |
| 1209108-08 | 1621 | 08/31/2012 | 22 | 2.5 | 136 | 0.3 | 1.5 | <0.009 |
| 1209119-01 | 1624 | 09/04/2012 | 17 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1209119-03 | 1627 | 09/04/2012 | 22 | 2.5 | 600 | 1.5 | 1 | <0.0018 |
| 1209119-06 | 1630 | 09/05/2012 | 17 | 2.5 | 600 | 1.5 | .5 | <0.0018 |
| 1209119-08 | 1633 | 09/05/2012 | 22 | 2.5 | 600 | 1.5 | 2.5 | <0.0018 |
| 1209170-01 | 1636 | 09/06/2012 | 17 | 2.5 | 600 | 1.5 | ND | <0.0018 |
| 1209170-03 | 1639 | 09/06/2012 | 22 | 2.5 | 600 | 1.5 | 4.5 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | | Asbestos Fibers | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1209170-06 | 1642 | 09/07/2012 | 17 | 2.5 | 381 | 1.0 | 1 | <0.0027 |
| 1209170-08 | 1645 | 09/07/2012 | 22 | 2.5 | 360 | 0.9 | 2.5 | <0.003 |
| 1209283-01 | 1648 | 09/10/2012 | 17 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209283-03 | 1651 | 09/10/2012 | 22 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209283-06 | 1654 | 09/11/2012 | 17 | 2.3 | 600 | 1.4 | 4 | <0.0019 |
| 1209283-08 | 1657 | 09/11/2012 | 22 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1209283-11 | 1660 | 09/12/2012 | 17 | 2.0 | 600 | 1.2 | 1.5 | <0.0022 |
| 1209283-13 | 1663 | 09/12/2012 | 22 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209341-01 | 1666 | 09/13/2012 | 17 | 2.3 | 600 | 1.4 | 5 | <0.0019 |
| 1209341-03 | 1669 | 09/13/2012 | 22 | 2.3 | 600 | 1.4 | 2 | <0.0019 |
| 1209341-06 | 1672 | 09/14/2012 | 17 | 2.3 | 421 | 0.9 | 3.5 | <0.003 |
| 1209341-08 | 1675 | 09/14/2012 | 22 | 2.3 | 412 | 0.9 | 2 | <0.003 |
| 1209432-01 | 1678 | 09/17/2012 | 17 | 2.0 | 600 | 1.2 | 2 | <0.0022 |
| 1209432-03 | 1681 | 09/17/2012 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1209432-06 | 1684 | 09/18/2012 | 17 | 2.3 | 600 | 1.4 | 7.5 | 0.0025 |
| 1209432-08 | 1687 | 09/18/2012 | 22 | 2.3 | 600 | 1.4 | 1.5 | <0.0022 |
| 1209432-11 | 1690 | 09/19/2012 | 17 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |
| 1209432-13 | 1693 | 09/19/2012 | 22 | 2.3 | 600 | 1.4 | ND | <0.0019 |
| 1210077-01 | 1696 | 09/28/2012 | 17 | 2.0 | 333 | 0.7 | 2.5 | <0.0039 |
| 1210077-03 | 1699 | 09/28/2012 | 22 | 2.3 | 321 | 0.7 | 1 | <0.0039 |
| 1210164-01 | 1702 | 10/01/2012 | 17 | 2.4 | 600 | 1.4 | 4 | <0.0019 |
| 1210164-03 | 1705 | 10/01/2012 | 22 | 2.1 | 600 | 1.3 | 4 | <0.0021 |
| 1210164-06 | 1708 | 10/03/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |
| 1210164-08 | 1711 | 10/03/2012 | 22 | 2.0 | 600 | 1.2 | 8.5 | 0.0033 |
| 1210206-01 | 1714 | 10/04/2012 | 17 | 3.0 | 600 | 1.8 | ND | <0.0015 |
| 1210206-03 | 1717 | 10/04/2012 | 22 | 2.5 | 600 | 1.5 | 1 | <0.0018 |
| 1210206-06 | 1720 | 10/05/2012 | 17 | 2.0 | 306 | 0.6 | 2 | <0.0045 |
| 1210206-08 | 1723 | 10/05/2012 | 22 | 2.1 | 342 | 0.7 | .5 | <0.0039 |
| 1210324-01 | 1726 | 10/08/2012 | 17 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1210324-03 | 1729 | 10/08/2012 | 22 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1210324-06 | 1732 | 10/09/2012 | 17 | 2.8 | 600 | 1.7 | 1.5 | <0.0016 |
| 1210324-08 | 1735 | 10/09/2012 | 22 | 2.3 | 600 | 1.4 | 1 | <0.0019 |
| 1210324-11 | 1738 | 10/10/2012 | 17 | 2.3 | 600 | 1.4 | 3 | <0.0019 |
| 1210324-13 | 1741 | 10/10/2012 | 22 | 2.1 | 600 | 1.3 | 1.5 | <0.0021 |
| 1210386-01 | 1744 | 10/11/2012 | 17 | 2.3 | 600 | 1.4 | ND | <0.0019 |
| 1210386-03 | 1750 | 10/12/2012 | 17 | 2.3 | 360 | 0.8 | 1 | <0.0034 |
| 1210386-05 | 1753 | 10/12/2012 | 22 | 2.5 | 345 | 0.9 | ND | <0.003 |
| 1210457-01 | 1756 | 10/15/2012 | 17 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1210457-03 | 1759 | 10/15/2012 | 22 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1210457-06 | 1762 | 10/16/2012 | 17 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1210457-08 | 1765 | 10/16/2012 | 22 | 2.3 | 600 | 1.4 | 3 | <0.0019 |
| 1210457-11 | 1768 | 10/17/2012 | 17 | 2.3 | 600 | 1.4 | 4.5 | <0.0019 |
| 1210457-13 | 1771 | 10/17/2012 | 22 | 2.8 | 600 | 1.7 | 3.5 | <0.0016 |
| 1210522-01 | 1774 | 10/18/2012 | 17 | 2.0 | 600 | 1.2 | 4 | <0.0022 |

Asbestos

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

| Sample, Date and Station Information | | | | Sampler Run Information | | Asbestos Fibers | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-------------------|---------------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Asbestos (fibers) | Conc Asbestos (fibers/cc) |
| 1210522-03 | 1777 | 10/18/2012 | 22 | 2.3 | 600 | 1.4 | 1.5 | <0.0019 |
| 1210522-06 | 1780 | 10/19/2012 | 17 | 2.4 | 316 | 0.8 | 2.5 | <0.0034 |
| 1210522-08 | 1783 | 10/19/2012 | 22 | 2.3 | 313 | 0.7 | 1.5 | <0.0039 |
| 1210614-01 | 1786 | 10/23/2012 | 17 | 2.4 | 465 | 1.1 | 1 | <0.0025 |
| 1210614-03 | 1789 | 10/23/2012 | 22 | 2.2 | 465 | 1.0 | 12.5 | 0.0059 |
| 1210614-06 | 1792 | 10/24/2012 | 17 | 2.0 | 600 | 1.2 | .5 | <0.0022 |
| 1210614-08 | 1795 | 10/24/2012 | 22 | 2.0 | 600 | 1.2 | 3 | <0.0022 |
| 1211059-01 | 1804 | 10/29/2012 | 17 | 2.3 | 600 | 1.4 | 8.5 | 0.0029 |
| 1211059-03 | 1807 | 10/29/2012 | 22 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1211059-06 | 1810 | 10/30/2012 | 17 | 2.2 | 600 | 1.3 | 4.5 | <0.0021 |
| 1211059-08 | 1813 | 10/30/2012 | 22 | 2.3 | 600 | 1.4 | 3 | <0.0019 |
| 1211059-11 | 1816 | 10/31/2012 | 17 | 2.0 | 498 | 1.0 | 1.5 | <0.0027 |
| 1211059-12 | 1819 | 10/31/2012 | 22 | 2.4 | 481 | 1.2 | 2 | <0.0022 |
| 1211110-01 | 1822 | 11/01/2012 | 17 | 2.0 | 600 | 1.2 | 1 | <0.0022 |
| 1211110-03 | 1825 | 11/01/2012 | 22 | 2.3 | 600 | 1.4 | 2.5 | <0.0019 |
| 1211110-06 | 1828 | 11/02/2012 | 17 | 2.0 | 376 | 0.8 | 6 | 0.0035 |
| 1211110-08 | 1831 | 11/02/2012 | 22 | 2.0 | 363 | 0.7 | 3 | <0.0019 |
| 1211228-01 | 1834 | 11/05/2012 | 17 | 2.3 | 600 | 1.4 | 9.5 | 0.0032 |
| 1211228-03 | 1837 | 11/05/2012 | 22 | 2.8 | 600 | 1.7 | 4 | <0.0016 |
| 1211228-06 | 1840 | 11/06/2012 | 17 | 2.0 | 600 | 1.2 | 7.5 | 0.003 |
| 1211228-08 | 1843 | 11/06/2012 | 22 | 2.2 | 600 | 1.3 | 6 | 0.0022 |
| 1211228-11 | 1846 | 11/07/2012 | 17 | 2.3 | 600 | 1.4 | 1.5 | <0.0019 |
| 1211228-13 | 1849 | 11/07/2012 | 22 | 2.2 | 600 | 1.3 | 1.5 | <0.0021 |
| 1211284-01 | 1852 | 11/08/2012 | 17 | 2.0 | 600 | 1.2 | 3 | NA |
| 1211284-03 | 1855 | 11/08/2012 | 22 | 2.3 | 600 | 1.4 | 2 | NA |
| 1211284-06 | 1858 | 11/09/2012 | 17 | 2.3 | 369 | 0.8 | ND | NA |
| 1211284-08 | 1861 | 11/09/2012 | 22 | 2.4 | 370 | 0.9 | 1 | NA |
| 1211356-01 | 1864 | 11/12/2012 | 17 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1211356-03 | 1867 | 11/12/2012 | 22 | 2.0 | 600 | 1.2 | ND | <0.0022 |
| 1211356-06 | 1873 | 11/13/2012 | 22 | 2.0 | 600 | 1.2 | 2.5 | <0.0022 |

l/min = liters per minute

min = minutes

m³ = cubic meters

mg = milligrams

mg/m³ = milligrams per cubic meter

ug = micrograms

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1011112-05 | 0095 | 11/01/2010 | 18 | 1197.9 | 318 | 376.6 | 16 | 0.042 |
| 1011170-02 | 0098 | 11/02/2010 | 17 | 1134.2 | 1452 | 1628.3 | 73 | 0.045 |
| 1011170-05 | 0101 | 11/02/2010 | 18 | 1154.0 | 600 | 684.6 | 81 | 0.049 |
| 1011170-08 | 0104 | 11/03/2010 | 17 | 1166.8 | 1434 | 1654.3 | 81 | 0.049 |
| 1011170-11 | 0107 | 11/03/2010 | 18 | 1154.0 | 600 | 684.6 | 59 | 0.036 |
| 1011258-02 | 0110 | 11/04/2010 | 17 | 1162.5 | 1404 | 1613.8 | 61 | 0.038 |
| 1011258-05 | 0113 | 11/04/2010 | 18 | 1172.4 | 588 | 681.6 | 32 | 0.047 |
| 1011258-08 | 0116 | 11/05/2010 | 17 | 1121.5 | 414 | 459.0 | 18 | 0.039 |
| 1011258-11 | 0119 | 11/05/2010 | 18 | 1141.3 | 414 | 467.2 | 17 | 0.036 |
| 1011258-14 | 0122 | 11/08/2010 | 17 | 1147.0 | 1374 | 1558.1 | 39 | 0.025 |
| 1011258-17 | 0125 | 11/08/2010 | 18 | 1151.2 | 1386 | 1577.5 | 33 | 0.021 |
| 1011334-02 | 0128 | 11/09/2010 | 17 | 1606.1 | 467 | 1434.0 | 29 | 0.018 |
| 1011334-05 | 0131 | 11/09/2010 | 18 | 1613.4 | 408 | 1428.0 | 20 | 0.012 |
| 1011334-08 | 0134 | 11/10/2010 | 17 | 1622.9 | 491 | 1440.0 | 32 | 0.020 |
| 1011334-11 | 0137 | 11/10/2010 | 18 | 1000.8 | 423 | 852.0 | 20 | 0.020 |
| 1011376-02 | 0140 | 11/11/2010 | 17 | 1130.0 | 1410 | 1575.3 | 43 | 0.027 |
| 1011376-05 | 0143 | 11/11/2010 | 18 | 597.6 | 942 | 556.5 | 26 | 0.047 |
| 1011376-08 | 0146 | 11/12/2010 | 17 | 1144.1 | 348 | 393.7 | 24 | 0.061 |
| 1011376-11 | 0149 | 11/12/2010 | 18 | 1155.5 | 246 | 281.0 | 16 | 0.057 |
| 1011484-02 | 0152 | 11/15/2010 | 17 | 1162.5 | 1428 | 1641.3 | 74 | 0.045 |
| 1011484-05 | 0155 | 11/15/2010 | 18 | 603.2 | 882 | 526.0 | 34 | 0.065 |
| 1011484-08 | 0158 | 11/16/2010 | 17 | 1131.4 | 1416 | 1582.4 | 61 | 0.039 |
| 1011484-11 | 0161 | 11/16/2010 | 18 | 1134.2 | 504 | 570.4 | 23 | 0.040 |
| 1011484-14 | 0164 | 11/17/2010 | 17 | 1154.0 | 1446 | 1649.9 | 45 | 0.027 |
| 1011484-17 | 0167 | 11/17/2010 | 18 | 1135.6 | 1446 | 1623.6 | 46 | 0.028 |
| 1011547-02 | 0170 | 11/18/2010 | 17 | 1156.9 | 1422 | 1626.5 | 39 | 0.024 |
| 1011547-05 | 0173 | 11/18/2010 | 18 | 1144.1 | 1410 | 1595.0 | 38 | 0.024 |
| 1011547-08 | 0176 | 11/19/2010 | 17 | 1138.5 | 384 | 432.2 | 18 | 0.042 |
| 1011547-11 | 0179 | 11/19/2010 | 18 | 1141.3 | 378 | 426.5 | 9.0 | 0.021 |
| 1011649-02 | 0182 | 11/24/2010 | 17 | 1127.1 | 426 | 474.7 | 16 | 0.034 |
| 1011649-05 | 0185 | 11/24/2010 | 18 | 1168.2 | 378 | 436.6 | 15 | 0.034 |
| 1012048-02 | 0188 | 11/29/2010 | 17 | 1155.5 | 1428 | 1631.3 | 28 | 0.017 |
| 1012048-05 | 0191 | 11/29/2010 | 18 | 1132.8 | 1434 | 1606.1 | 16 | 0.010 |
| 1012048-08 | 0194 | 11/30/2010 | 17 | 1130.0 | 1440 | 1608.8 | 54 | 0.034 |
| 1012048-11 | 0197 | 11/30/2010 | 18 | 1138.5 | 1440 | 1620.9 | 62 | 0.038 |
| 1012048-14 | 0200 | 12/01/2010 | 17 | 1135.6 | 1410 | 1583.1 | 93 | 0.060 |
| 1012048-17 | 0203 | 12/01/2010 | 18 | 1164.0 | 1374 | 1581.2 | 77 | 0.049 |
| 1012173-02 | 0206 | 12/02/2010 | 17 | 1132.8 | 1404 | 1572.5 | 40 | 0.025 |
| 1012173-05 | 0209 | 12/02/2010 | 18 | 1210.7 | 0 | 0.0 | NA | 0 |
| 1012173-08 | 0212 | 12/06/2010 | 17 | 1149.8 | 1446 | 1643.8 | 34 | 0.021 |
| 1012173-11 | 0215 | 12/06/2010 | 18 | 1180.9 | 1278 | 1492.2 | 27 | 0.018 |
| 1012233-02 | 0218 | 12/07/2010 | 17 | 1149.8 | 1434 | 1630.2 | 25 | 0.016 |
| 1012233-05 | 0221 | 12/07/2010 | 18 | 1168.2 | 1392 | 1607.8 | 16 | 0.010 |
| 1012325-02 | 0224 | 12/13/2010 | 17 | 1164.0 | 1458 | 1677.9 | 30 | 0.018 |
| 1012325-05 | 0227 | 12/13/2010 | 18 | 1158.3 | 1458 | 1669.7 | 37 | 0.022 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1012394-02 | 0230 | 12/14/2010 | 17 | 1120.1 | 1398 | 1548.1 | 41 | 0.026 |
| 1012394-05 | 0233 | 12/14/2010 | 18 | 1132.8 | 1404 | 1572.5 | 26 | 0.016 |
| 1012394-08 | 0236 | 12/15/2010 | 17 | 1130.0 | 1446 | 1615.5 | 62 | 0.038 |
| 1012394-11 | 0239 | 12/15/2010 | 18 | 1152.6 | 1446 | 1647.9 | 64 | 0.039 |
| 1012451-02 | 0242 | 12/16/2010 | 17 | 1156.9 | 1440 | 1647.1 | 22 | 0.013 |
| 1012451-05 | 0245 | 12/16/2010 | 18 | 1141.3 | 1434 | 1618.1 | 27 | 0.017 |
| 1101090-02 | 0248 | 01/03/2011 | 17 | 1154.0 | 1416 | 1615.7 | 44 | 0.027 |
| 1101090-05 | 0251 | 01/03/2011 | 18 | 1144.1 | 1422 | 1608.6 | 35 | 0.022 |
| 1101090-08 | 0254 | 01/04/2011 | 17 | 1141.3 | 1452 | 1638.4 | 39 | 0.024 |
| 1101090-11 | 0257 | 01/04/2011 | 18 | 1134.2 | 1410 | 1581.2 | 32 | 0.020 |
| 1101090-14 | 0260 | 01/05/2011 | 17 | 1127.1 | 1410 | 1571.3 | 43 | 0.027 |
| 1101090-17 | 0263 | 01/05/2011 | 20 | 1151.2 | 1386 | 1577.5 | 34 | 0.022 |
| 1101152-02 | 0266 | 01/06/2011 | 17 | 1152.6 | 1434 | 1634.2 | ND | <0.00061 |
| 1101152-05 | 0269 | 01/06/2011 | 20 | 1138.5 | 1428 | 1607.4 | 32 | 0.020 |
| 1101152-08 | 0272 | 01/07/2011 | 17 | 1132.8 | 510 | 571.2 | 30 | 0.053 |
| 1101152-11 | 0275 | 01/07/2011 | 20 | 1145.5 | 504 | 570.8 | 18 | 0.032 |
| 1101221-04 | 0281 | 01/10/2011 | 20 | 1193.7 | 1428 | 1685.3 | 14 | 0.0083 |
| 1101221-07 | 0284 | 01/11/2011 | 17 | 1145.5 | 1440 | 1630.9 | 23 | 0.014 |
| 1101221-10 | 0287 | 01/11/2011 | 20 | 1154.0 | 1410 | 1608.8 | 28 | 0.017 |
| 1101221-13 | 0290 | 01/12/2011 | 17 | 1141.3 | 1452 | 1638.4 | 41 | 0.025 |
| 1101221-16 | 0293 | 01/12/2011 | 20 | 1141.3 | 1440 | 1624.9 | ND | <0.00062 |
| 1101323-02 | 0296 | 01/13/2011 | 17 | 1110.1 | 1446 | 1587.1 | 24 | 0.015 |
| 1101323-05 | 0299 | 01/13/2011 | 20 | 1137.0 | 1446 | 1625.6 | 30 | 0.018 |
| 1101323-08 | 0302 | 01/14/2011 | 17 | 1179.5 | 420 | 489.8 | 7.0 | 0.014 |
| 1101323-11 | 0305 | 01/14/2011 | 20 | 1147.0 | 396 | 449.1 | 6.0 | 0.013 |
| 1101323-14 | 0308 | 01/17/2011 | 17 | 1122.9 | 1458 | 1618.7 | 3.0 | 0.0019 |
| 1101323-17 | 0311 | 01/17/2011 | 20 | 1190.9 | 1494 | 1759.0 | 5.0 | 0.0028 |
| 1101429-02 | 0314 | 01/18/2011 | 17 | 1159.7 | 1422 | 1630.5 | 29 | 0.018 |
| 1101429-05 | 0317 | 01/18/2011 | 20 | 1152.6 | 1410 | 1606.8 | 34 | 0.021 |
| 1101429-08 | 0320 | 01/19/2011 | 17 | 1147.0 | 1434 | 1626.2 | 31 | 0.019 |
| 1101429-11 | 0323 | 01/19/2011 | 20 | 1137.0 | 1446 | 1625.6 | 29 | 0.018 |
| 1101447-02 | 0326 | 01/20/2011 | 17 | 1135.6 | 1416 | 1589.9 | 30 | 0.019 |
| 1101447-05 | 0329 | 01/20/2011 | 20 | 1142.7 | 1368 | 1545.6 | 33 | 0.021 |
| 1101447-08 | 0332 | 01/21/2011 | 17 | 1154.0 | 420 | 479.2 | 20 | 0.042 |
| 1101447-11 | 0335 | 01/21/2011 | 20 | 1148.4 | 414 | 470.1 | 18 | 0.038 |
| 1101561-02 | 0338 | 01/25/2011 | 17 | 1169.6 | 1434 | 1658.3 | 33 | 0.020 |
| 1101561-05 | 0341 | 01/25/2011 | 20 | 1199.4 | 1434 | 1700.4 | 50 | 0.029 |
| 1101561-08 | 0344 | 01/26/2011 | 17 | 1132.8 | 1434 | 1606.1 | 32 | 0.020 |
| 1101561-11 | 0347 | 01/26/2011 | 20 | 1138.5 | 1434 | 1614.1 | 43 | 0.027 |
| 1102066-02 | 0350 | 01/27/2011 | 17 | 1138.5 | 1416 | 1593.8 | 27 | 0.017 |
| 1102066-05 | 0353 | 01/27/2011 | 20 | 1145.5 | 1410 | 1597.0 | 33 | 0.021 |
| 1102066-08 | 0356 | 01/28/2011 | 17 | 1155.5 | 420 | 479.8 | 15 | 0.031 |
| 1102066-11 | 0359 | 01/28/2011 | 20 | 1138.5 | 390 | 439.0 | 13 | 0.030 |
| 1102164-02 | 0362 | 01/31/2011 | 17 | 1173.9 | 1446 | 1678.2 | 23 | 0.014 |
| 1102164-05 | 0365 | 01/31/2011 | 20 | 1162.5 | 1452 | 1668.9 | 28 | 0.017 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | PM10 | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1102164-08 | 0368 | 02/01/2011 | 17 | 1141.3 | 1404 | 1584.3 | 65 | 0.041 |
| 1102164-11 | 0371 | 02/01/2011 | 20 | 1138.5 | 1410 | 1587.1 | 49 | 0.031 |
| 1102164-14 | 0374 | 02/02/2011 | 17 | 1138.5 | 1440 | 1620.9 | 63 | 0.039 |
| 1102164-17 | 0377 | 02/02/2011 | 20 | 1149.8 | 1434 | 1630.2 | 34 | 0.021 |
| 1102164-20 | 0380 | 02/03/2011 | 17 | 1148.4 | 1416 | 1607.7 | 43 | 0.027 |
| 1102164-23 | 0383 | 02/03/2011 | 20 | 1149.8 | 1434 | 1630.2 | 25 | 0.015 |
| 1102271-05 | 0389 | 02/04/2011 | 20 | 1141.3 | 378 | 426.5 | 16 | 0.038 |
| 1102271-08 | 0392 | 02/07/2011 | 17 | 1137.0 | 1446 | 1625.6 | 44 | 0.027 |
| 1102271-11 | 0395 | 02/07/2011 | 20 | 1164.0 | 1476 | 1698.6 | 44 | 0.026 |
| 1102271-14 | 0398 | 02/08/2011 | 17 | 1138.5 | 1362 | 1533.1 | 49 | 0.032 |
| 1102271-17 | 0401 | 02/08/2011 | 20 | 1149.8 | 1338 | 1521.0 | 41 | 0.027 |
| 1102465-02 | 0404 | 02/09/2011 | 17 | 1132.8 | 1446 | 1619.5 | 32 | 0.020 |
| 1102465-05 | 0407 | 02/09/2011 | 20 | 1149.8 | 1434 | 1630.2 | 28 | 0.017 |
| 1102465-08 | 0410 | 02/10/2011 | 17 | 1134.2 | 1404 | 1574.4 | 28 | 0.018 |
| 1102465-11 | 0413 | 02/10/2011 | 20 | 1148.4 | 1398 | 1587.3 | 20 | 0.013 |
| 1102465-14 | 0416 | 02/11/2011 | 17 | 1139.9 | 426 | 480.1 | 16 | 0.033 |
| 1102465-17 | 0419 | 02/11/2011 | 20 | 1149.8 | 402 | 457.0 | 15 | 0.033 |
| 1102668-02 | 0422 | 02/21/2011 | 17 | 1155.5 | 1362 | 1555.9 | 16 | 0.010 |
| 1102668-05 | 0425 | 02/21/2011 | 20 | 1155.5 | 1326 | 1514.8 | 16 | 0.011 |
| 1102668-08 | 0428 | 02/22/2011 | 17 | 1131.4 | 1500 | 1677.9 | 24 | 0.014 |
| 1102668-11 | 0431 | 02/22/2011 | 20 | 1135.6 | 1512 | 1697.7 | 28 | 0.016 |
| 1102668-14 | 0434 | 02/23/2011 | 17 | 1139.9 | 1350 | 1521.5 | 29 | 0.019 |
| 1102668-17 | 0437 | 02/23/2011 | 20 | 1137.0 | 1344 | 1510.9 | 34 | 0.023 |
| 1103069-02 | 0440 | 02/28/2011 | 17 | 1120.1 | 1428 | 1581.4 | 35 | 0.022 |
| 1103069-05 | 0443 | 02/28/2011 | 20 | 1152.6 | 1446 | 1647.9 | 30 | 0.018 |
| 1103069-08 | 0446 | 03/01/2011 | 17 | 1138.5 | 1452 | 1634.4 | 32 | 0.020 |
| 1103069-11 | 0449 | 03/01/2011 | 20 | 1134.2 | 1440 | 1614.8 | 31 | 0.019 |
| 1103188-02 | 0452 | 03/03/2011 | 17 | 1155.5 | 1446 | 1651.9 | 29 | 0.018 |
| 1103188-05 | 0455 | 03/03/2011 | 20 | 1141.3 | 1470 | 1658.7 | 30 | 0.018 |
| 1103188-08 | 0458 | 03/04/2011 | 17 | 1156.9 | 390 | 446.1 | 12 | 0.027 |
| 1103545-02 | 0464 | 03/07/2011 | 17 | 1130.0 | 1476 | 1649.0 | 21 | 0.013 |
| 1103545-05 | 0467 | 03/07/2011 | 20 | 1165.4 | 1386 | 1596.9 | 21 | 0.013 |
| 1103545-08 | 0470 | 03/08/2011 | 17 | 1151.2 | 1344 | 1529.7 | 22 | 0.014 |
| 1103545-11 | 0473 | 03/08/2011 | 20 | 1145.5 | 1296 | 1467.8 | 29 | 0.020 |
| 1103545-14 | 0476 | 03/09/2011 | 17 | 1145.5 | 1428 | 1617.4 | 26 | 0.016 |
| 1103545-17 | 0479 | 03/09/2011 | 20 | 1151.2 | 1422 | 1618.5 | 31 | 0.019 |
| 1103545-20 | 0482 | 03/10/2011 | 17 | 1156.9 | 1404 | 1605.9 | 23 | 0.014 |
| 1103545-23 | 0485 | 03/10/2011 | 20 | 1154.0 | 1458 | 1663.6 | 34 | 0.020 |
| 1103545-26 | 0488 | 03/11/2011 | 17 | 1135.6 | 426 | 478.3 | 13 | 0.027 |
| 1103545-29 | 0491 | 03/11/2011 | 20 | 1134.2 | 378 | 423.9 | 16 | 0.038 |
| 1103545-32 | 0494 | 03/17/2011 | 17 | 1149.8 | 1398 | 1589.2 | 33 | 0.021 |
| 1103545-35 | 0497 | 03/17/2011 | 20 | 1165.4 | 1392 | 1603.9 | 37 | 0.023 |
| 1103791-02 | 0500 | 03/28/2011 | 17 | 1144.1 | 1476 | 1669.7 | 29 | 0.0017 |
| 1103791-05 | 0503 | 03/28/2011 | 20 | 1151.2 | 1476 | 1680.0 | 31 | 0.018 |
| 1103791-08 | 0506 | 03/29/2011 | 17 | 1130.0 | 1446 | 1615.5 | 33 | 0.021 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1103791-11 | 0509 | 03/29/2011 | 20 | 1137.0 | 1458 | 1639.1 | 36 | 0.022 |
| 1104064-02 | 0512 | 03/30/2011 | 17 | 1137.0 | 1422 | 1598.6 | 38 | 0.023 |
| 1104064-05 | 0515 | 03/30/2011 | 20 | 1134.2 | 1410 | 1581.2 | 36 | 0.023 |
| 1104064-08 | 0518 | 03/31/2011 | 17 | 1139.9 | 1410 | 1589.1 | 37 | 0.023 |
| 1104064-11 | 0521 | 03/31/2011 | 20 | 1138.5 | 1374 | 1546.6 | 51 | 0.033 |
| 1104064-14 | 0524 | 04/01/2011 | 17 | 1130.0 | 408 | 455.8 | 15 | 0.033 |
| 1104064-17 | 0527 | 04/01/2011 | 20 | 1139.9 | 408 | 459.8 | 16 | 0.035 |
| 1104167-02 | 0530 | 04/04/2011 | 17 | 1152.6 | 1404 | 1600.0 | 47 | 0.030 |
| 1104167-05 | 0533 | 04/04/2011 | 20 | 1139.9 | 408 | 459.8 | 42 | 0.026 |
| 1104167-08 | 0536 | 04/05/2011 | 17 | 1141.3 | 1446 | 1631.7 | 55 | 0.034 |
| 1104167-11 | 0539 | 04/05/2011 | 20 | 1142.7 | 1416 | 1599.8 | 58 | 0.036 |
| 1104167-14 | 0542 | 04/06/2011 | 17 | 1158.3 | 1422 | 1628.5 | 120 | 0.073 |
| 1104167-17 | 0545 | 04/06/2011 | 20 | 1149.8 | 984 | 1118.6 | 61 | 0.054 |
| 1104340-02 | 0548 | 04/08/2011 | 17 | 1161.1 | 444 | 509.7 | 5.9 | 0.012 |
| 1104340-05 | 0551 | 04/08/2011 | 20 | 1144.1 | 396 | 448.0 | 3.9 | 0.0087 |
| 1104340-08 | 0554 | 04/11/2011 | 17 | 1137.0 | 1422 | 1598.6 | 28 | 0.018 |
| 1104340-11 | 0557 | 04/11/2011 | 20 | 1147.0 | 1422 | 1612.5 | 32 | 0.020 |
| 1104340-14 | 0560 | 04/12/2011 | 17 | 1152.6 | 1428 | 1627.3 | 29 | 0.018 |
| 1104340-17 | 0563 | 04/12/2011 | 20 | 1144.1 | 1386 | 1567.8 | 43 | 0.026 |
| 1104472-02 | 0566 | 04/13/2011 | 14 | 1152.6 | 1428 | 1627.3 | 19 | 0.012 |
| 1104472-05 | 0569 | 04/13/2011 | 20 | 1186.6 | 1488 | 1745.7 | 23 | 0.015 |
| 1104472-08 | 0572 | 04/14/2011 | 14 | 1162.5 | 1434 | 1648.2 | 28 | 0.017 |
| 1104472-11 | 0575 | 04/14/2011 | 20 | 1137.0 | 1386 | 1558.1 | 31 | 0.020 |
| 1104472-14 | 0578 | 04/15/2011 | 14 | 1138.5 | 1386 | 1560.1 | 19 | 0.012 |
| 1104472-17 | 0581 | 04/15/2011 | 20 | 1141.3 | 1332 | 1503.0 | 18 | 0.012 |
| 1104472-20 | 0584 | 04/16/2011 | 14 | 1159.7 | 354 | 405.9 | 4.6 | 0.011 |
| 1104472-23 | 0587 | 04/16/2011 | 20 | 1141.3 | 408 | 460.4 | 5.1 | 0.011 |
| 1104472-26 | 0590 | 04/18/2011 | 14 | 1127.1 | 1410 | 1571.3 | 9.5 | 0.0060 |
| 1104472-29 | 0593 | 04/18/2011 | 20 | 1152.6 | 1428 | 1627.3 | 9.6 | 0.0059 |
| 1104642-02 | 0596 | 04/19/2011 | 14 | 1139.9 | 1476 | 1663.5 | 20 | 0.012 |
| 1104642-05 | 0599 | 04/19/2011 | 20 | 1135.6 | 1452 | 1630.3 | 21 | 0.013 |
| 1104642-08 | 0602 | 04/20/2011 | 14 | 1149.8 | 1374 | 1562.0 | 14 | 0.0088 |
| 1104642-11 | 0605 | 04/20/2011 | 20 | 1138.5 | 1416 | 1593.8 | 14 | 0.0088 |
| 1104642-14 | 0608 | 04/21/2011 | 14 | 1144.1 | 402 | 454.7 | 8.0 | 0.018 |
| 1104713-02 | 0614 | 04/26/2011 | 14 | 1145.5 | 1410 | 1597.0 | 34 | 0.021 |
| 1104713-05 | 0617 | 04/26/2011 | 20 | 1165.4 | 1422 | 1638.4 | 38 | 0.023 |
| 1104713-08 | 0620 | 04/27/2011 | 14 | 1137.0 | 1422 | 1598.6 | 29 | 0.018 |
| 1104713-11 | 0623 | 04/27/2011 | 20 | 1169.6 | 1074 | 1242.0 | 26 | 0.021 |
| 1105059-02 | 0626 | 04/28/2011 | 14 | 1127.1 | 1374 | 1531.2 | 39 | 0.026 |
| 1105059-05 | 0629 | 04/28/2011 | 20 | 1392.0 | 1392 | 1578.5 | 17 | 0.011 |
| 1105059-08 | 0632 | 04/29/2011 | 14 | 1135.6 | 468 | 525.5 | 12 | 0.023 |
| 1105059-11 | 0635 | 04/29/2011 | 20 | 1122.9 | 378 | 419.7 | 8.4 | 0.020 |
| 1105193-02 | 0638 | 05/02/2011 | 14 | 1145.5 | 1368 | 1549.4 | 30 | 0.019 |
| 1105193-05 | 0641 | 05/02/2011 | 20 | 1149.8 | 1320 | 1500.6 | 35 | 0.023 |
| 1105193-08 | 0644 | 05/03/2011 | 14 | 1125.7 | 1386 | 1542.6 | 41 | 0.027 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1105193-11 | 0647 | 05/03/2011 | 20 | 1134.2 | 1470 | 1648.5 | 69 | 0.042 |
| 1105193-14 | 0650 | 05/04/2011 | 14 | 1120.1 | 1422 | 1574.7 | 37 | 0.024 |
| 1105193-17 | 0653 | 05/04/2011 | 20 | 1145.5 | 1446 | 1637.7 | 58 | 0.035 |
| 1105193-20 | 0656 | 05/05/2011 | 14 | 1144.1 | 1464 | 1656.1 | 51 | 0.031 |
| 1105193-23 | 0659 | 05/05/2011 | 20 | 1175.3 | 1194 | 1387.4 | 69 | 0.050 |
| 1109373-02 | 0662 | 09/12/2011 | 17 | 1137.0 | 1422 | 1598.6 | 38 | 0.024 |
| 1109373-05 | 0665 | 09/12/2011 | 22 | 1165.4 | 1134 | 1306.6 | 32 | 0.025 |
| 1109373-08 | 0668 | 09/13/2011 | 17 | 1139.9 | 1380 | 1555.3 | 33 | 0.021 |
| 1109373-11 | 0671 | 09/13/2011 | 22 | 1138.5 | 1374 | 1546.6 | 32 | 0.020 |
| 1109373-14 | 0674 | 09/14/2011 | 17 | 1139.9 | 1512 | 1704.0 | 49 | 0.029 |
| 1109373-17 | 0677 | 09/14/2011 | 22 | 1111.6 | 1500 | 1648.5 | 35 | 0.021 |
| 1109536-02 | 0680 | 09/15/2011 | 17 | 1139.9 | 1512 | 1704.0 | 36 | 0.024 |
| 1109536-05 | 0683 | 09/15/2011 | 22 | 1111.6 | 1500 | 1648.5 | 43 | 0.027 |
| 1109536-08 | 0686 | 09/16/2011 | 17 | 1137.0 | 420 | 472.2 | 19 | 0.039 |
| 1109536-11 | 0689 | 09/16/2011 | 22 | 1147.0 | 396 | 449.1 | 13 | 0.028 |
| 1109538-02 | 0692 | 09/19/2011 | 17 | 1169.6 | 1398 | 1616.6 | 41 | 0.025 |
| 1109538-05 | 0695 | 09/19/2011 | 22 | 1147.0 | 396 | 449.1 | 52 | 0.032 |
| 1109538-08 | 0698 | 09/20/2011 | 17 | 1169.6 | 1398 | 1616.6 | 35 | 0.021 |
| 1109538-11 | 0701 | 09/20/2011 | 22 | 1152.6 | 1404 | 1600.0 | 44 | 0.026 |
| 1109538-14 | 0704 | 09/21/2011 | 17 | 1132.8 | 1398 | 1565.8 | 27 | 0.017 |
| 1109538-17 | 0707 | 09/21/2011 | 22 | 1139.9 | 1404 | 1582.3 | 67 | 0.042 |
| 1109592-02 | 0710 | 09/22/2011 | 17 | 1132.8 | 1398 | 1565.8 | 22 | 0.014 |
| 1109592-05 | 0713 | 09/22/2011 | 22 | 1139.9 | 1404 | 1582.3 | 25 | 0.016 |
| 1109592-08 | 0716 | 09/23/2011 | 17 | 1142.7 | 420 | 474.5 | 13 | 0.028 |
| 1109592-11 | 0719 | 09/23/2011 | 22 | 1134.2 | 414 | 464.3 | 16 | 0.035 |
| 1109701-02 | 0722 | 09/26/2011 | 17 | 1159.7 | 1434 | 1644.2 | 26 | 0.016 |
| 1109701-05 | 0725 | 09/26/2011 | 22 | 1162.5 | 1440 | 1655.1 | 32 | 0.020 |
| 1109701-08 | 0728 | 09/27/2011 | 17 | 1107.3 | 1410 | 1543.7 | 36 | 0.023 |
| 1109701-11 | 0731 | 09/27/2011 | 22 | 1138.5 | 1398 | 1573.6 | 48 | 0.031 |
| 1109701-14 | 0734 | 09/28/2011 | 17 | 1134.2 | 1434 | 1608.1 | 33 | 0.021 |
| 1109701-17 | 0737 | 09/28/2011 | 22 | 1138.5 | 1434 | 1614.1 | 56 | 0.035 |
| 1110043-02 | 0740 | 09/29/2011 | 17 | 1134.2 | 1434 | 1608.1 | 22 | 0.014 |
| 1110043-05 | 0743 | 09/29/2011 | 22 | 1138.5 | 1434 | 1614.1 | 28 | 0.018 |
| 1110043-08 | 0746 | 09/30/2011 | 17 | 1145.5 | 414 | 468.9 | 9.4 | 0.020 |
| 1110043-11 | 0749 | 09/30/2011 | 22 | 1141.3 | 408 | 460.4 | 7.4 | 0.016 |
| 1110175-02 | 0752 | 10/03/2011 | 17 | 1173.9 | 1434 | 1664.3 | 11 | 0.0066 |
| 1110175-05 | 0755 | 10/03/2011 | 22 | 1152.6 | 1434 | 1634.2 | 12 | 0.0075 |
| 1110605-02 | 0758 | 10/20/2011 | 17 | 1145.5 | 1452 | 1644.5 | 27 | 0.016 |
| 1110605-05 | 0761 | 10/20/2011 | 22 | 1152.6 | 1434 | 1634.2 | 31 | 0.019 |
| 1110605-08 | 0764 | 10/21/2011 | 17 | 1132.8 | 396 | 443.5 | 8.7 | 0.020 |
| 1110605-11 | 0767 | 10/21/2011 | 22 | 1134.2 | 390 | 437.3 | 10 | 0.024 |
| 1110605-14 | 0770 | 10/24/2011 | 17 | 1135.6 | 1404 | 1576.4 | 31 | 0.020 |
| 1110605-17 | 0773 | 10/24/2011 | 22 | 1155.5 | 1410 | 1610.8 | 37 | 0.023 |
| 1110711-02 | 0776 | 10/25/2011 | 17 | 1145.5 | 1434 | 1624.1 | 68 | 0.042 |
| 1110711-05 | 0779 | 10/25/2011 | 22 | 1135.6 | 1440 | 1616.8 | 40 | 0.025 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1110711-08 | 0782 | 10/26/2011 | 17 | 1124.3 | 1428 | 1587.4 | 34 | 0.021 |
| 1110711-11 | 0785 | 10/26/2011 | 22 | 1137.0 | 1428 | 1605.4 | 34 | 0.021 |
| 1111056-02 | 0788 | 10/27/2011 | 17 | 1132.8 | 1446 | 1619.5 | 36 | 0.022 |
| 1111056-05 | 0791 | 10/27/2011 | 22 | 1132.8 | 1434 | 1606.1 | 47 | 0.029 |
| 1111056-08 | 0794 | 10/28/2011 | 17 | 1128.6 | 420 | 468.6 | 18 | 0.037 |
| 1111056-11 | 0797 | 10/28/2011 | 22 | 1134.2 | 420 | 471.0 | 13 | 0.027 |
| 1111056-14 | 0800 | 10/31/2011 | 17 | 1128.6 | 1482 | 1653.6 | 43 | 0.026 |
| 1111056-17 | 0803 | 10/31/2011 | 22 | 1141.3 | 1488 | 1679.1 | 50 | 0.030 |
| 1111122-02 | 0806 | 11/01/2011 | 17 | 1130.0 | 1374 | 1535.0 | 33 | 0.021 |
| 1111122-05 | 0809 | 11/01/2011 | 22 | 1135.6 | 1374 | 1542.7 | 39 | 0.026 |
| 1111122-08 | 0812 | 11/02/2011 | 17 | 1125.7 | 1422 | 1582.7 | 32 | 0.020 |
| 1111122-11 | 0815 | 11/02/2011 | 22 | 1132.8 | 1422 | 1592.6 | 37 | 0.023 |
| 1111200-02 | 0818 | 11/03/2011 | 17 | 1132.8 | 3108 | 3481.0 | 45 | 0.013 |
| 1111200-05 | 0821 | 11/03/2011 | 22 | 1135.6 | 3090 | 3469.5 | 40 | 0.012 |
| 1111290-02 | 0824 | 11/07/2011 | 17 | 1134.2 | 1380 | 1547.5 | 21 | 0.013 |
| 1111290-05 | 0827 | 11/07/2011 | 22 | 1141.3 | 1374 | 1550.4 | 18 | 0.011 |
| 1111290-08 | 0830 | 11/08/2011 | 17 | 1134.2 | 1128 | 1264.9 | 15 | 0.012 |
| 1111290-11 | 0833 | 11/08/2011 | 22 | 1138.5 | 1458 | 1641.1 | 26 | 0.016 |
| 1111290-14 | 0836 | 11/09/2011 | CTO5 10B | 1161.1 | 1350 | 1549.8 | 25 | 0.016 |
| 1111290-17 | 0839 | 11/09/2011 | 22 | 1141.3 | 1476 | 1665.5 | 50 | 0.030 |
| 1111349-02 | 0842 | 11/10/2011 | CTO5 10B | 1134.2 | 1392 | 1561.0 | 28 | 0.018 |
| 1111349-05 | 0845 | 11/10/2011 | 22 | 1148.4 | 1386 | 1573.7 | 49 | 0.031 |
| 1111349-08 | 0848 | 11/11/2011 | CTO5 10B | 1134.2 | 444 | 497.9 | 4.2 | 0.0084 |
| 1111349-11 | 0851 | 11/11/2011 | 22 | 1148.4 | 468 | 531.4 | 5.6 | 0.011 |
| 1111463-02 | 0854 | 11/14/2011 | CTO5 10B | 1135.6 | 1422 | 1596.6 | 26 | 0.016 |
| 1111463-05 | 0857 | 11/14/2011 | 22 | 1137.0 | 1434 | 1612.1 | 37 | 0.023 |
| 1111463-08 | 0860 | 11/15/2011 | CTO5 10B | 1130.0 | 1446 | 1615.5 | 25 | 0.016 |
| 1111463-11 | 0863 | 11/15/2011 | 22 | 1134.2 | 1446 | 1621.5 | 30 | 0.019 |
| 1111463-14 | 0866 | 11/16/2011 | CTO5 10B | 1145.5 | 1422 | 1610.6 | 20 | 0.012 |
| 1111463-17 | 0869 | 11/16/2011 | 22 | 1132.8 | 1440 | 1612.8 | 23 | 0.015 |
| 1111569-02 | 0872 | 11/17/2011 | CTO5 10B | 1147.0 | 1386 | 1571.7 | 12 | 0.0076 |
| 1111569-05 | 0875 | 11/17/2011 | 22 | 1139.9 | 1374 | 1548.5 | 15 | 0.0094 |
| 1111569-08 | 0878 | 11/21/2011 | CTO5 10B | 1132.8 | 1422 | 1592.6 | 11 | 0.0068 |
| 1111569-11 | 0881 | 11/21/2011 | 22 | 1134.2 | 1398 | 1567.7 | 17 | 0.011 |
| 1112042-02 | 0884 | 11/28/2011 | CTO5 10B | 1132.8 | 1428 | 1599.4 | 17 | 0.011 |
| 1112042-05 | 0887 | 11/28/2011 | 22 | 1142.7 | 1536 | 1735.4 | 38 | 0.022 |
| 1112042-08 | 0890 | 11/29/2011 | CTO5 10B | 1134.2 | 1422 | 1594.6 | 13 | 0.0084 |
| 1112042-11 | 0893 | 11/29/2011 | 22 | 1135.6 | 1356 | 1522.5 | 21 | 0.014 |
| 1112042-14 | 0896 | 11/30/2011 | CTO5 10B | 1134.2 | 1356 | 1520.6 | 17 | 0.011 |
| 1112042-17 | 0899 | 11/30/2011 | 22 | 1142.7 | 1428 | 1613.4 | 30 | 0.019 |
| 1112128-02 | 0902 | 12/01/2011 | CTO5 10B | 1144.1 | 1428 | 1615.4 | 21 | 0.013 |
| 1112128-05 | 0905 | 12/01/2011 | 22 | 1189.4 | 1338 | 1573.5 | 21 | 0.014 |
| 1112128-08 | 0908 | 12/02/2011 | CTO5 10B | 1161.1 | 390 | 447.7 | 6.8 | 0.015 |
| 1112128-11 | 0911 | 12/02/2011 | 22 | 1141.3 | 354 | 399.5 | 3.6 | 0.0090 |
| 1112128-14 | 0914 | 12/05/2011 | CTO5 10B | 1152.6 | 1278 | 1456.4 | 24 | 0.016 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1112128-17 | 0914 | 12/05/2011 | 22 | 1145.5 | 1266 | 1433.9 | 36 | 0.025 |
| 1112199-02 | 0920 | 12/06/2011 | 17 | 1134.2 | 1326 | 1487.0 | 34 | 0.023 |
| 1112199-05 | 0923 | 12/06/2011 | 22 | 1135.6 | 1350 | 1515.8 | 49 | 0.032 |
| 1112199-08 | 0926 | 12/07/2011 | 17 | 1138.5 | 1500 | 1688.4 | 36 | 0.022 |
| 1112199-11 | 0929 | 12/07/2011 | 22 | 1141.3 | 1500 | 1692.6 | 45 | 0.026 |
| 1112269-02 | 0932 | 12/08/2011 | 17 | 1134.2 | 1446 | 1621.5 | 43 | 0.026 |
| 1112269-05 | 0935 | 12/08/2011 | 22 | 1137.0 | 1452 | 1632.3 | 70 | 0.043 |
| 1112269-07 | 0938 | 12/09/2011 | 17 | 1148.4 | 360 | 408.7 | 7.1 | 0.017 |
| 1112269-09 | 0941 | 12/09/2011 | 22 | 1139.9 | 354 | 399.0 | 20 | 0.050 |
| 1112374-02 | 0944 | 12/13/2011 | 17 | 1124.3 | 1446 | 1607.4 | 25 | 0.016 |
| 1112374-05 | 0947 | 12/13/2011 | 22 | 1131.4 | 1446 | 1617.5 | 43 | 0.026 |
| 1112374-08 | 0950 | 12/14/2011 | 17 | 1148.4 | 1452 | 1648.6 | 22 | 0.014 |
| 1112374-11 | 0953 | 12/14/2011 | 22 | 1138.5 | 1446 | 1627.6 | 39 | 0.024 |
| 1112502-02 | 0956 | 12/16/2011 | 17 | 1132.8 | 474 | 530.9 | 9.4 | 0.018 |
| 1112502-05 | 0959 | 12/16/2011 | 22 | 1141.3 | 474 | 534.9 | 8.1 | 0.015 |
| 1112502-08 | 0962 | 12/19/2011 | 17 | 1154.0 | 1542 | 1759.4 | 26 | 0.015 |
| 1112502-11 | 0965 | 12/19/2011 | 22 | 1131.4 | 1500 | 1677.9 | 30 | 0.018 |
| 1112574-02 | 0968 | 12/20/2011 | 17 | 1132.8 | 1290 | 1444.8 | 30 | 0.021 |
| 1112574-05 | 0971 | 12/20/2011 | 22 | 1132.8 | 1320 | 1478.4 | 47 | 0.032 |
| 1112574-08 | 0974 | 12/21/2011 | 17 | 1132.8 | 1428 | 1599.4 | 51 | 0.032 |
| 1112574-11 | 0977 | 12/21/2011 | 22 | 1132.8 | 1320 | 1478.4 | 33 | 0.022 |
| 1112574-14 | 0980 | 12/22/2011 | 17 | 1132.8 | 1464 | 1639.7 | 22 | 0.013 |
| 1112574-17 | 0983 | 12/22/2011 | 22 | 1132.8 | 1308 | 1465.0 | 26 | 0.018 |
| 1112574-20 | 0986 | 12/27/2011 | 17 | 1132.8 | 1428 | 1599.4 | 19 | 0.012 |
| 1112574-23 | 0989 | 12/27/2011 | 22 | 1132.8 | 1428 | 1599.4 | 26 | 0.016 |
| 1201077-02 | 0992 | 12/28/2011 | 17 | 1132.8 | 1422 | 1592.6 | 14 | 0.0089 |
| 1201077-05 | 0995 | 12/28/2011 | 22 | 1132.5 | 1422 | 1600.6 | 20 | 0.012 |
| 1201077-09 | 1001 | 12/29/2011 | 22 | 1145.5 | 420 | 475.7 | 3.8 | 0.0079 |
| 1201077-12 | 1004 | 01/03/2012 | 17 | 1139.9 | 1446 | 1629.6 | 24 | 0.015 |
| 1201077-15 | 1007 | 01/03/2012 | 22 | 1132.8 | 1452 | 1626.2 | 39 | 0.024 |
| 1201077-18 | 1010 | 01/04/2012 | 17 | 1132.8 | 1434 | 1606.1 | 26 | 0.016 |
| 1201077-21 | 1013 | 01/04/2012 | 22 | 1148.4 | 1428 | 1621.4 | 32 | 0.019 |
| 1201130-02 | 1016 | 01/05/2012 | 17 | 1138.5 | 552 | 621.3 | 12 | 0.020 |
| 1201130-05 | 1019 | 01/05/2012 | 22 | 1142.7 | 1494 | 1687.9 | 49 | 0.029 |
| 1201204-02 | 1022 | 01/09/2012 | 17 | 1134.2 | 1440 | 1614.8 | 46 | 0.029 |
| 1201204-05 | 1025 | 01/09/2012 | 22 | 1145.5 | 1446 | 1637.7 | 68 | 0.041 |
| 1201204-08 | 1028 | 01/10/2012 | 17 | 1139.9 | 1476 | 1663.5 | 44 | 0.026 |
| 1201204-11 | 1031 | 01/10/2012 | 22 | 1139.9 | 1476 | 1663.5 | 68 | 0.041 |
| 1201204-14 | 1034 | 01/11/2012 | 17 | 1148.4 | 1398 | 1587.3 | 27 | 0.017 |
| 1201204-17 | 1037 | 01/11/2012 | 22 | 1138.5 | 1392 | 1566.8 | 42 | 0.027 |
| 1201249-02 | 1040 | 01/12/2012 | 17 | 1134.2 | 1428 | 1601.4 | 24 | 0.015 |
| 1201249-05 | 1043 | 01/12/2012 | 22 | 1139.9 | 1428 | 1609.4 | 50 | 0.031 |
| 1201249-08 | 1046 | 01/13/2012 | 17 | 1135.6 | 462 | 518.7 | 9.8 | 0.019 |
| 1201249-11 | 1049 | 01/13/2012 | 22 | 1138.5 | 444 | 499.8 | 17 | 0.033 |
| 1201342-02 | 1052 | 01/16/2012 | 17 | 1137.0 | 1446 | 1625.6 | 20 | 0.013 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1201342-05 | 1055 | 01/16/2012 | 22 | 1161.1 | 1452 | 1666.9 | 21 | 0.012 |
| 1201342-08 | 1058 | 01/17/2012 | 17 | 1134.2 | 1362 | 1527.3 | 16 | 0.010 |
| 1201342-11 | 1061 | 01/17/2012 | 22 | 1139.9 | 1356 | 1528.2 | 18 | 0.012 |
| 1201342-14 | 1064 | 01/18/2012 | 17 | 1147.0 | 1578 | 1789.5 | 17 | 0.0097 |
| 1201342-17 | 1067 | 01/18/2012 | 22 | 1134.2 | 1578 | 1769.6 | 20 | 0.011 |
| 1201497-02 | 1070 | 01/19/2012 | 17 | 1134.2 | 1338 | 1500.4 | 12 | 0.0078 |
| 1201497-05 | 1073 | 01/19/2012 | 22 | 1141.3 | 1308 | 1475.9 | 19 | 0.013 |
| 1201497-08 | 1076 | 01/24/2012 | 17 | 1151.2 | 426 | 484.9 | 9.2 | 0.019 |
| 1201497-11 | 1079 | 01/24/2012 | 22 | 1132.8 | 420 | 470.4 | 7.4 | 0.011 |
| 1201581-02 | 1088 | 01/26/2012 | 17 | 1154.0 | 1362 | 1554.0 | 11 | 0.0073 |
| 1201581-05 | 1091 | 01/26/2012 | 22 | 1135.6 | 1362 | 1529.3 | 9.0 | 0.0059 |
| 1201581-08 | 1094 | 01/27/2012 | 17 | 1122.9 | 426 | 472.9 | 2.5 | 0.0053 |
| 1201581-11 | 1097 | 01/27/2012 | 22 | 1139.9 | 426 | 480.1 | 1.1 | 0.0023 |
| 1201581-14 | 1100 | 01/28/2012 | 17 | 1166.8 | 414 | 477.6 | 2.1 | 0.0044 |
| 1201581-17 | 1103 | 01/28/2012 | 22 | 1156.9 | 420 | 480.4 | ND | <0.0021 |
| 1202082-02 | 1106 | 01/30/2012 | 17 | 1132.8 | 1446 | 1619.5 | 16 | 0.0098 |
| 1202082-05 | 1109 | 01/30/2012 | 22 | 1131.4 | 1446 | 1617.5 | 16 | 0.0098 |
| 1202082-08 | 1112 | 01/31/2012 | 17 | 1139.9 | 1374 | 1548.5 | 12 | 0.0076 |
| 1202082-11 | 1115 | 01/31/2012 | 22 | 1144.1 | 1368 | 1547.5 | 10 | 0.0067 |
| 1202124-02 | 1118 | 02/02/2012 | 17 | 1134.2 | 1416 | 1587.9 | 18 | 0.012 |
| 1202124-05 | 1121 | 02/02/2012 | 22 | 1151.2 | 1422 | 1618.5 | 22 | 0.014 |
| 1202124-08 | 1124 | 02/03/2012 | 17 | 1152.6 | 432 | 492.3 | 5.9 | 0.012 |
| 1202124-11 | 1127 | 02/03/2012 | 22 | 1151.2 | 408 | 464.4 | 8.0 | 0.017 |
| 1202220-02 | 1130 | 02/08/2012 | 17 | 1132.8 | 1428 | 1599.4 | 18 | 0.011 |
| 1202220-05 | 1133 | 02/08/2012 | 22 | 1137.0 | 1428 | 1605.4 | 27 | 0.017 |
| 1202279-02 | 1136 | 02/09/2012 | 17 | 1132.8 | 1416 | 1585.9 | 22 | 0.014 |
| 1202279-05 | 1139 | 02/09/2012 | 22 | 1152.6 | 1416 | 1613.7 | 31 | 0.019 |
| 1202279-08 | 1142 | 02/10/2012 | 17 | 1139.9 | 402 | 453.1 | 4.5 | 0.0099 |
| 1202279-11 | 1145 | 02/10/2012 | 22 | 1141.3 | 378 | 426.5 | 7.6 | 0.018 |
| 1202389-02 | 1148 | 02/15/2012 | 17 | 1152.6 | 1482 | 1688.9 | 13 | 0.0078 |
| 1202389-05 | 1151 | 02/15/2012 | 22 | 1151.2 | 1488 | 1693.6 | 12 | 0.0071 |
| 1202450-02 | 1154 | 02/16/2012 | 17 | 1145.5 | 1350 | 1529.0 | 22 | 0.014 |
| 1202450-05 | 1157 | 02/16/2012 | 22 | 1148.4 | 1440 | 1635.0 | 26 | 0.016 |
| 1202631-02 | 1160 | 02/23/2012 | 17 | 1156.9 | 1482 | 1695.1 | 36 | 0.021 |
| 1202631-05 | 1163 | 02/23/2012 | 22 | 1132.8 | 1410 | 1579.2 | 35 | 0.022 |
| 1202631-07 | 1166 | 02/24/2012 | 17 | 1154.0 | 366 | 417.6 | 7.2 | 0.017 |
| 1202631-09 | 1169 | 02/24/2012 | 22 | 1142.7 | 360 | 406.7 | 3.4 | 0.0084 |
| 1203209-01 | 1172 | 03/06/2012 | 17 | 1137.0 | 1476 | 1659.3 | 32 | 0.019 |
| 1203209-03 | 1175 | 03/06/2012 | 22 | 1152.6 | 1470 | 1675.2 | 22 | 0.013 |
| 1203404-02 | 1178 | 03/12/2012 | 17 | 1151.2 | 1422 | 1618.5 | 25 | 0.016 |
| 1203404-05 | 1181 | 03/12/2012 | 22 | 1132.8 | 1422 | 1592.6 | 27 | 0.017 |
| 1203554-02 | 1184 | 03/20/2012 | 17 | 1144.1 | 1398 | 1581.4 | 24 | 0.015 |
| 1203554-05 | 1187 | 03/20/2012 | 22 | 1134.2 | 1398 | 1567.7 | 19 | 0.012 |
| 1205678-02 | 1199 | 05/21/2012 | 22 | 1132.8 | 1392 | 1559.0 | 1392 | 1559.04 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1205678-05 | 1202 | 05/21/2012 | 17 | 1132.8 | 672 | 752.6 | 672 | 752.64 |
| 1205678-08 | 1205 | 05/22/2012 | 22 | 1132.8 | 1380 | 1545.6 | 1380 | 1545.6 |
| 1205678-11 | 1208 | 05/22/2012 | 17 | 1132.8 | 1080 | 1209.6 | 1080 | 1209.6 |
| 1205678-14 | 1211 | 05/23/2012 | 22 | 1132.8 | 1452 | 1626.2 | 1452 | 1626.24 |
| 1205678-19 | 1217 | 05/24/2012 | 22 | 1132.8 | 1386 | 1552.3 | 1386 | 1552.32 |
| 1205741-04 | 1235 | 05/25/2012 | 22 | 1132.8 | 390 | 436.8 | 6.2 | 0.014 |
| 1206030-02 | 1229 | 05/29/2012 | 22 | 1132.8 | 1416 | 1635.5 | 17 | 0.010 |
| 1206030-05 | 1235 | 05/30/2012 | 22 | 1132.8 | 1416 | 1585.9 | 23 | 0.014 |
| 1206118-02 | 1241 | 05/31/2012 | 22 | 1132.8 | 1452 | 1626.2 | 22 | 0.013 |
| 1206118-05 | 1247 | 05/31/2012 | 17 | 1132.8 | 1404 | 1572.5 | 7.2 | 0.018 |
| 1206118-08 | 1250 | 06/01/2012 | 22 | 1132.8 | 366 | 409.9 | 5.9 | 0.0038 |
| 1206118-11 | 1256 | 06/01/2012 | 17 | 1132.8 | 378 | 423.4 | 3.6 | 0.0085 |
| 1206224-02 | 1259 | 06/05/2012 | 22 | 1132.8 | 1512 | 1693.4 | 8.3 | 0.0049 |
| 1206224-05 | 1265 | 06/06/2012 | 17 | 1161.1 | 1338 | 1536.0 | 10 | 0.068 |
| 1206224-08 | 1268 | 06/05/2012 | 22 | 1132.8 | 1488 | 1666.6 | 5.0 | 0.0030 |
| 1206224-11 | 1274 | 06/06/2012 | 17 | 1141.3 | 1356 | 1530.1 | 4.2 | 0.0027 |
| 1206301-02 | 1271 | 06/07/2012 | 22 | 1132.8 | 1446 | 1619.5 | 8.3 | 0.0051 |
| 1206301-08 | 1280 | 06/07/2012 | 17 | 1132.8 | 1446 | 1619.5 | 4.0 | 0.0025 |
| 1206301-05 | 1277 | 06/08/2012 | 22 | 1132.8 | 384 | 430.1 | 5.5 | 0.013 |
| 1206301-11 | 1286 | 06/08/2012 | 17 | 1132.8 | 396 | 443.5 | 3.4 | 0.0077 |
| 1206447-02 | 1283 | 06/11/2012 | 22 | 1132.8 | 1446 | 1619.5 | 28 | 0.018 |
| 1206447-05 | 1292 | 06/11/2012 | 17 | 1132.8 | 1434 | 1606.1 | 4.2 | 0.0026 |
| 1206447-08 | 1289 | 06/12/2012 | 22 | 1132.8 | 1428 | 1599.4 | 16 | 0.0099 |
| 1206447-11 | 1298 | 06/12/2012 | 17 | 1132.8 | 1428 | 1599.4 | 3.7 | 0.0023 |
| 1206447-14 | 1295 | 06/13/2012 | 22 | 1132.8 | 1440 | 1612.8 | 25 | 0.016 |
| 1206447-17 | 1304 | 06/13/2012 | 17 | 1132.8 | 1440 | 1612.8 | 5.2 | 0.0032 |
| 1206549-02 | 1301 | 06/14/2012 | 22 | 1132.8 | 1464 | 1639.7 | 34 | 0.021 |
| 1206549-05 | 1307 | 06/15/2012 | 17 | 1132.8 | 348 | 389.8 | 8.9 | 0.023 |
| 1206549-08 | 1310 | 06/14/2012 | 22 | 1132.8 | 1368 | 1532.2 | 6.2 | 0.0040 |
| 1206549-11 | 1316 | 06/15/2012 | 17 | 1132.8 | 330 | 369.6 | 3.0 | 0.0081 |
| 1206638-02 | 1322 | 06/18/2012 | 17 | 1132.8 | 1428 | 1599.4 | 2.7 | 0.0017 |
| 1206638-05 | 1313 | 06/18/2012 | 22 | 1132.8 | 1428 | 1599.4 | 14 | 0.0086 |
| 1206638-08 | 1328 | 06/19/2012 | 17 | 1132.8 | 1452 | 1626.2 | 2.5 | 0.0015 |
| 1206638-11 | 1319 | 06/19/2012 | 22 | 1132.8 | 1422 | 1592.6 | 16 | 0.010 |
| 1206638-14 | 1334 | 06/20/2012 | 17 | 1132.8 | 1398 | 1565.8 | 1.3 | 0.00083 |
| 1206638-17 | 1325 | 06/20/2012 | 22 | 1132.8 | 1422 | 1592.6 | 20 | 0.013 |
| 1206715-02 | 1331 | 06/21/2012 | 22 | 1132.8 | 1434 | 1606.1 | 8.1 | 0.0050 |
| 1206715-05 | 1337 | 06/22/2012 | 22 | 1132.8 | 402 | 450.2 | 2.6 | 0.0058 |
| 1206715-08 | 1340 | 06/21/2012 | 17 | 1132.8 | 1440 | 1612.8 | 2.4 | 0.0015 |
| 1206715-11 | 1346 | 06/22/2012 | 17 | 1132.8 | 420 | 470.4 | 1.8 | 0.0038 |
| 1206774-02 | 1352 | 06/25/2012 | 17 | 1132.8 | 1434 | 1606.1 | 2.8 | 0.0017 |
| 1206774-05 | 1343 | 06/25/2012 | 22 | 1132.8 | 1434 | 1606.1 | 5.3 | 0.0033 |
| 1206774-08 | 1358 | 06/26/2012 | 17 | 1132.8 | 1536 | 1720.3 | 2.6 | 0.0015 |
| 1206774-11 | 1349 | 06/26/2012 | 22 | 1132.8 | 1512 | 1693.4 | 9.8 | 0.0058 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | PM10 | | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1206774-14 | 1364 | 06/27/2012 | 17 | 1132.8 | 1428 | 1599.4 | 3.0 | 0.0019 |
| 1206774-17 | 1355 | 06/27/2012 | 22 | 1132.8 | 1428 | 1599.4 | 8.6 | 0.0054 |
| 1207043-02 | 1361 | 06/28/2012 | 22 | 1132.8 | 906 | 1014.7 | 11 | 0.011 |
| 1207043-05 | 1370 | 06/28/2012 | 17 | 1132.8 | 1422 | 1592.6 | 2.3 | 0.0014 |
| 1207043-08 | 1367 | 06/29/2012 | 22 | 1132.8 | 306 | 342.7 | 2.1 | 0.0061 |
| 1207043-11 | 1376 | 06/29/2012 | 17 | 1132.8 | 300 | 336.0 | 3.4 | 0.10 |
| 1207099-02 | 1382 | 07/02/2012 | 17 | 1132.8 | 1416 | 1585.9 | 97 | 0.073 |
| 1207099-05 | 1379 | 07/02/2012 | 22 | 1132.8 | 1410 | 1579.2 | 54 | 0.039 |
| 1207261-02 | 1388 | 07/09/2012 | 17 | 1139.9 | 1530 | 1724.3 | 2.8 | 0.0016 |
| 1207261-05 | 1391 | 07/09/2012 | 22 | 1132.8 | 1542 | 1727.0 | 5.5 | 0.0035 |
| 1207261-08 | 1385 | 07/10/2012 | 17 | 1135.6 | 1398 | 1569.7 | 11 | 0.0072 |
| 1207261-11 | 1394 | 07/10/2012 | 22 | 1132.8 | 1398 | 1565.8 | 11 | 0.0072 |
| 1207381-02 | 1397 | 07/11/2012 | 17 | 1135.6 | 1440 | 1616.8 | 4.6 | 0.0028 |
| 1207381-05 | 1403 | 07/12/2012 | 17 | 1135.6 | 1452 | 1630.3 | 3.2 | 0.0020 |
| 1207381-08 | 1400 | 07/11/2012 | 22 | 1132.8 | 1398 | 1565.8 | 8.8 | 0.0056 |
| 1207381-11 | 1406 | 07/12/2012 | 22 | 1132.8 | 1452 | 1626.2 | 15 | 0.0095 |
| 1207381-14 | 1409 | 07/13/2012 | 17 | 1137.0 | 318 | 357.5 | 5.3 | 0.015 |
| 1207381-17 | 1412 | 07/13/2012 | 22 | 1132.8 | 330 | 369.6 | 4.9 | 0.013 |
| 1207500-02 | 1415 | 07/16/2012 | 17 | 1138.5 | 1398 | 1573.6 | 3.5 | 0.0022 |
| 1207500-05 | 1418 | 07/16/2012 | 22 | 1132.8 | 1374 | 1538.9 | 4.6 | 0.0030 |
| 1207500-08 | 1421 | 07/17/2012 | 17 | 1138.5 | 1212 | 1364.2 | 2.1 | 0.0015 |
| 1207500-11 | 1424 | 07/17/2012 | 22 | 1132.8 | 1176 | 1317.1 | 2.9 | 0.0022 |
| 1207500-16 | 1430 | 07/18/2012 | 22 | 1132.8 | 1356 | 1518.7 | 3.8 | 0.010 |
| 1207543-04 | 1436 | 07/19/2012 | 22 | 1132.8 | 1440 | 1612.8 | 7.1 | 0.0044 |
| 1207543-07 | 1439 | 07/19/2012 | 17 | 1132.8 | 342 | 383.0 | 16 | 0.040 |
| 1207543-10 | 1442 | 07/20/2012 | 22 | 1132.8 | 390 | 436.8 | 3.1 | 0.0071 |
| 1207632-02 | 1445 | 07/23/2012 | 17 | 1132.8 | 1374 | 1538.9 | 66 | 0.043 |
| 1207632-05 | 1448 | 07/23/2012 | 22 | 991.2 | 1344 | 1317.1 | 11 | 0.0081 |
| 1207632-08 | 1451 | 07/24/2012 | 17 | 1132.8 | 1440 | 1612.8 | 78 | 0.048 |
| 1207632-11 | 1454 | 07/24/2012 | 22 | 1132.8 | 1440 | 1612.8 | 9.0 | 0.0056 |
| 1207632-14 | 1457 | 07/25/2012 | 17 | 1132.8 | 1428 | 1599.4 | 51 | 0.032 |
| 1207632-17 | 1460 | 07/25/2012 | 22 | 1132.8 | 1428 | 1599.4 | 7.2 | 0.0045 |
| 1207721-02 | 3218 | 07/26/2012 | CTO5 14 | 1135.6 | 1446 | 1623.6 | 21 | 0.013 |
| 1207722-04 | 1466 | 07/26/2012 | 22 | 1132.8 | 1422 | 1592.6 | 4.7 | 0.0030 |
| 1207721-09 | 3226 | 07/27/2012 | CTO5 14 | 1135.6 | 372 | 417.7 | 16 | 0.038 |
| 1207722-09 | 1472 | 07/27/2012 | 22 | 1132.8 | 438 | 490.6 | 2.6 | 0.0053 |
| 1208099-02 | 3234 | 07/30/2012 | CTO5 14 | 1135.6 | 1404 | 1576.4 | 64 | 0.041 |
| 1208110-04 | 1478 | 07/30/2012 | 22 | 1132.8 | 1416 | 1585.9 | 12 | 0.0073 |
| 1208099-09 | 3242 | 07/31/2012 | CTO5 14 | 1135.6 | 1404 | 1576.4 | 43 | 0.028 |
| 1208110-09 | 1484 | 07/31/2012 | 22 | 1132.8 | 1320 | 1478.4 | 14 | 0.0095 |
| 1208099-16 | 3250 | 08/01/2012 | CTO5 14 | 1135.6 | 1434 | 1610.1 | 42 | 0.026 |
| 1208110-14 | 1490 | 08/01/2012 | 22 | 1132.8 | 1434 | 1606.1 | 14 | 0.0086 |
| 1208139-02 | 3258 | 08/02/2012 | CTO5 14 | 1135.6 | 1452 | 1630.3 | 34 | 0.021 |
| 1208144-04 | 1496 | 08/02/2012 | 22 | 1132.8 | 1434 | 1606.1 | 11 | 0.0070 |
| 1208139-09 | 3266 | 08/03/2012 | CTO5 14 | 1135.6 | 396 | 444.6 | 14 | 0.030 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | PM10 | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1208144-09 | 1502 | 08/03/2012 | 22 | 1132.8 | 426 | 477.1 | 3.7 | 0.0078 |
| 1208250-02 | 3274 | 08/06/2012 | CTO5 14 | 1135.6 | 1428 | 1603.4 | 33 | 0.020 |
| 1208252-04 | 1508 | 08/06/2012 | 22 | 1132.8 | 1440 | 1612.8 | 7.6 | 0.0047 |
| 1208252-09 | 1514 | 08/07/2012 | 22 | 1132.8 | 1356 | 1518.7 | 8.5 | 0.0056 |
| 1208252-14 | 1520 | 08/08/2012 | 22 | 1132.8 | 1488 | 1666.6 | 12 | 0.0073 |
| 1208313-10 | 3298 | 08/09/2012 | CTO5 14 | 1132.8 | 1434 | 1606.1 | 36 | 0.022 |
| 1208317-04 | 1526 | 08/09/2012 | 22 | 1135.6 | 1524 | 1711.1 | 11 | 0.0064 |
| 1208313-10 | 3306 | 08/10/2012 | CTO5 14 | 1135.6 | 1380 | 1549.5 | 27 | 0.017 |
| 1208317-09 | 1532 | 08/10/2012 | 22 | 1076.2 | 1386 | 1474.7 | 9.5 | 0.0064 |
| | | | CTO5 14 | | | | | |
| 1208400-06 | 1544 | 08/14/2012 | 22 | 1132.8 | 1080 | 1209.6 | 10 | 0.0084 |
| | | | CTO5 14 | | | | | |
| 1208400-11 | 1550 | 08/15/2012 | 22 | 1132.8 | 1428 | 1599.4 | 15 | 0.0091 |
| | | | CTO5 14 | | | | | |
| 1208477-04 | 1556 | 08/16/2012 | 22 | 1132.8 | 1434 | 1606.1 | 8.8 | 0.0055 |
| | | | CTO5 14 | | | | | |
| 1208477-09 | 1562 | 08/17/2012 | 22 | 1125.7 | 402 | 447.4 | 6.0 | 0.013 |
| | | | CTO5 14 | | | | | |
| 1208565-03 | 1568 | 08/20/2012 | 22 | 1115.8 | 1284 | 1416.5 | 6.5 | 0.0046 |
| | | | CTO5 14 | | | | | |
| 1208565-08 | 1574 | 08/21/2012 | 22 | 1132.8 | 1422 | 1592.6 | 5.9 | 0.0037 |
| | | | CTO5 14 | | | | | |
| 1208565-13 | 1580 | 08/22/2012 | 22 | 1132.8 | 1434 | 1606.1 | 5.4 | 0.0034 |
| | | | CTO5 14 | | | | | |
| 1208608-04 | 1586 | 08/23/2012 | 22 | 1132.8 | 1434 | 1606.1 | 6.7 | 0.0042 |
| | | | CTO5 14 | | | | | |
| 1208608-09 | 1592 | 08/24/2012 | 22 | 1134.2 | 336 | 376.8 | 3.3 | 0.0088 |
| | | | CTO5 14 | | | | | |
| 1208710-04 | 1598 | 08/27/2012 | 22 | 1132.8 | 1434 | 1606.1 | 9.7 | 0.0060 |
| | | | CTO5 14 | | | | | |
| 1208710-09 | 1604 | 08/28/2012 | 22 | 1132.8 | 1422 | 1592.6 | 12 | 0.0074 |
| | | | CTO5 14 | | | | | |
| 1208710-14 | 1610 | 08/29/2012 | 22 | 1132.8 | 1350 | 1512.0 | 15 | 0.010 |
| | | | CTO5 14 | | | | | |
| 1209108-04 | 1616 | 08/30/2012 | 22 | 1132.8 | 1386 | 1552.3 | 10 | 0.0068 |
| | | | CTO5 14 | | | | | |
| 1209108-09 | 1622 | 08/31/2012 | 22 | 1132.8 | 156 | 174.7 | 6.9 | 0.039 |
| | | | CTO5 14 | | | | | |
| 1209119-04 | 1628 | 09/04/2012 | 22 | 1132.8 | 1548 | 1733.8 | 6.9 | 0.0040 |
| | | | CTO5 14 | | | | | |
| 1209119-09 | 1634 | 09/05/2012 | 22 | 1132.8 | 1410 | 1579.2 | 8.0 | 0.0051 |
| | | | CTO5 14 | | | | | |
| 1209170-04 | 1640 | 09/06/2012 | 22 | 1132.8 | 1410 | 1579.2 | 7.2 | 0.0046 |
| | | | CTO5 14 | | | | | |
| 1209170-09 | 1646 | 09/07/2012 | 22 | 1132.8 | 378 | 423.4 | 3.4 | 0.0080 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | PM10 | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1209283-04 | 1652 | 09/10/2012 | CTO5 14 22 | 1132.8 | 1422 | 1592.6 | 6.0 | 0.0038 |
| 1209283-09 | 1658 | 09/11/2012 | CTO5 14 22 | 1132.8 | 1380 | 1545.6 | 12 | 0.0081 |
| 1209283-14 | 1664 | 09/12/2012 | CTO5 14 22 | 1132.8 | 1308 | 1465.0 | 11 | 0.0076 |
| 1209341-04 | 1670 | 09/13/2012 | CTO5 14 22 | 1132.8 | 1422 | 1592.6 | 7.2 | 0.0045 |
| 1209341-09 | 1676 | 09/14/2012 | CTO5 14 22 | 1132.8 | 402 | 450.2 | 4.6 | 0.010 |
| 1209432-04 | 1682 | 09/17/2012 | CTO5 14 22 | 1132.8 | 1404 | 1572.5 | 4.6 | 0.0029 |
| 1209432-09 | 1688 | 09/18/2012 | CTO5 14 22 | 1132.8 | 1440 | 1612.8 | 3.5 | 0.0022 |
| 1209432-14 | 1694 | 09/19/2012 | CTO5 14 22 | 1132.8 | 1458 | 1633.0 | 4.1 | 0.0025 |
| 1210077-04 | 1700 | 09/28/2012 | CTO5 14 22 | 1132.8 | 318 | 356.2 | ND | <0.0028 |
| 1210164-04 | 1706 | 10/01/2012 | CTO5 14 22 | 1132.8 | 2742 | 3071.0 | 20 | 0.0065 |
| 1210164-09 | 1712 | 10/03/2012 | CTO5 14 22 | 1132.8 | 1404 | 1572.5 | 18 | 0.011 |
| 1210206-04 | 1718 | 10/04/2012 | CTO5 14 22 | 1132.8 | 1470 | 1646.4 | 5.7 | 0.0035 |
| 1210206-09 | 1724 | 10/05/2012 | CTO5 14 22 | 1132.8 | 300 | 336.0 | 3.2 | 0.0095 |
| 1210324-04 | 1730 | 10/08/2012 | CTO5 14 22 | 1097.4 | 1428 | 1549.4 | 7.0 | 0.0045 |
| 1210324-09 | 1736 | 10/09/2012 | CTO5 14 22 | 1088.9 | 1398 | 1505.1 | 7.0 | 0.0047 |
| 1210324-14 | 1742 | 10/10/2012 | CTO5 14 22 | 1175.3 | 1428 | 1659.3 | 9.9 | 0.0060 |
| 1210386-06 | 1754 | 10/12/2012 | CTO5 14 22 | 1185.2 | 336 | 393.7 | 5.7 | 0.014 |
| 1210457-04 | 1760 | 10/15/2012 | CTO5 14 22 | 1350.9 | 1446 | 1931.3 | ND | <0.00052 |
| 1210457-09 | 1766 | 10/16/2012 | CTO5 14 22 | 1159.7 | 1404 | 1609.8 | 6.7 | 0.0042 |
| 1210457-14 | 1772 | 10/17/2012 | CTO5 14 22 | 1158.3 | 1452 | 1662.8 | 9.3 | 0.0056 |
| 1210522-04 | 1778 | 10/18/2012 | CTO5 14 22 | 1152.6 | 1434 | 1634.2 | 12 | 0.0075 |
| 1210522-09 | 1784 | 10/19/2012 | CTO5 14 22 | 1022.4 | 330 | 333.6 | 8.4 | 0.025 |

Particulate Matter, Smaller than 10 Microns (PM10s)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limit: 5,000 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | PM10 | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------------|--|-----------------|---|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Air Flow (l/min) | Duration of Run (min) | Total Air Volume Monitored (m ³) | Total Mass (mg) | Concentration in Air (mg/m ³) |
| 1210614-04 | 1790 | 10/23/2012 | 22 | 1045.0 | 432 | 446.3 | 5.4 | 0.012 |
| | | | CTO5 14 | | | | | |
| 1210614-09 | 1796 | 10/24/2012 | 22 | 1370.7 | 1446 | 1959.6 | 6.8 | 0.0035 |
| | | | CTO5 14 | | | | | |
| 1211059-04 | 1808 | 10/29/2012 | 22 | 1162.5 | 1434 | 1648.2 | 2.6 | 0.0016 |
| | | | CTO5 14 | | | | | |
| 1211059-09 | 1814 | 10/30/2012 | 22 | 1178.1 | 1464 | 1705.3 | ND | <0.00059 |
| | | | CTO5 14 | | | | | |
| 1211059-13 | 1820 | 10/31/2012 | 22 | 1207.8 | 474 | 566.1 | ND | <0.0018 |
| | | | CTO5 14 | | | | | |
| 1211110-04 | 1826 | 11/01/2012 | 22 | 1244.7 | 1452 | 1786.8 | ND | <0.00056 |
| | | | CTO5 14 | | | | | |
| 1211110-09 | 1832 | 11/02/2012 | 22 | 1182.4 | 360 | 420.8 | 1.2 | 0.00067 |
| | | | CTO5 14 | | | | | |
| 1211228-04 | 1838 | 11/05/2012 | 22 | 1142.7 | 1410 | 1593.0 | 5.1 | 0.0032 |
| | | | CTO5 14 | | | | | |
| 1211228-09 | 1844 | 11/06/2012 | 22 | 1154.0 | 1440 | 1643.0 | 8.4 | 0.0051 |
| | | | CTO5 14 | | | | | |
| 1211228-14 | 1850 | 11/07/2012 | 22 | 1176.7 | 1392 | 1619.5 | 11 | 0.0065 |
| | | | CTO5 14 | | | | | |
| 1211284-04 | 1856 | 11/08/2012 | 22 | 1172.4 | 1458 | 1690.1 | 1.8 | NA |
| | | | CTO5 14 | | | | | |
| 1211284-09 | 1862 | 11/09/2012 | 22 | 1169.6 | 372 | 430.2 | ND | NA |
| | | | CTO5 14 | | | | | |
| 1211356-04 | 1868 | 11/12/2012 | 22 | 1171.0 | 1392 | 1611.7 | 2.1 | 0.0013 |
| | | | CTO5 14 | | | | | |
| 1211356-07 | 1874 | 11/13/2012 | 22 | 1018.1 | 1434 | 1443.5 | 1.7 | 0.0012 |

l/min = liters per minute

min = minutes

m³ = cubic meters

mg = milligrams

mg/m³ = milligrams per cubic meter

ug = micrograms

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1010406-09 | 0033 | 10/13/2010 | 17 | 1133 | 1428 | 1599.4 | 110 | 0.068 | 76 | 0.000048 | ND | <0.000016 |
| 1010406-12 | 0036 | 10/13/2010 | 18 | 1133 | 1434 | 1606.1 | 96 | 0.060 | 57 | 0.000036 | ND | <0.000016 |
| 1010637-03 | 0051 | 10/18/2010 | 17 | 1133 | 1386 | 1552.3 | 35 | 0.023 | ND | <0.000016 | ND | <0.000016 |
| 1010637-06 | 0054 | 10/18/2010 | 18 | 1133 | 1320 | 1478.4 | 38 | 0.026 | ND | <0.000017 | ND | <0.000017 |
| 1010637-03 | 0057 | 10/19/2010 | 17 | 1133 | 1368 | 1532.2 | 32 | 0.021 | ND | <0.000016 | ND | <0.000016 |
| 1010637-12 | 0060 | 10/19/2010 | 18 | 1133 | 1488 | 1666.6 | 55 | 0.033 | 39 | 0.000023 | ND | <0.000015 |
| 1010637-15 | 0063 | 10/20/2010 | 17 | 1133 | 1542 | 1727.0 | 68 | 0.039 | 30 | 0.000017 | ND | <0.000014 |
| 1010637-18 | 0066 | 10/20/2010 | 18 | 1133 | 1542 | 1727.0 | 54 | 0.034 | ND | <0.000016 | ND | <0.000016 |
| 1010692-03 | 0069 | 10/21/2010 | 17 | 1133 | 1362 | 1525.4 | 30 | 0.020 | ND | <0.000016 | ND | <0.000016 |
| 1010692-06 | 0072 | 10/21/2010 | 18 | 1133 | 1428 | 1599.4 | 35 | 0.022 | ND | <0.000016 | ND | <0.000016 |
| 1011030-06 | 0075 | 10/26/2010 | 17 | 1133 | 1362 | 1525.4 | 63 | 0.041 | 34 | 0.000022 | ND | <0.000016 |
| 1011030-03 | 0078 | 10/25/2010 | 18 | 1133 | 1452 | 1626.2 | 56 | 0.034 | ND | <0.000015 | ND | <0.000015 |
| 1011112-06 | 0096 | 11/01/2010 | 18 | 1133 | 312 | 349.4 | 11 | 0.031 | ND | <0.000072 | ND | <0.000072 |
| 1011170-03 | 0099 | 11/02/2010 | 17 | 1133 | 1458 | 1633.0 | 96 | 0.059 | 63 | 0.000039 | ND | <0.000015 |
| 1011170-06 | 0102 | 11/02/2010 | 18 | 1133 | 606 | 678.7 | 14 | 0.021 | ND | <0.000037 | ND | <0.000037 |
| 1011170-09 | 0105 | 11/03/2010 | 17 | 1133 | 1434 | 1606.1 | 83 | 0.052 | 52 | 0.000032 | ND | <0.000016 |
| 1011170-12 | 0108 | 11/03/2010 | 18 | 1133 | 606 | 678.7 | 47 | 0.030 | ND | <0.000016 | ND | <0.000016 |
| 1011258-03 | 0111 | 11/04/2010 | 17 | 1133 | 1410 | 1579.2 | 65 | 0.041 | 39 | 0.000024 | ND | <0.000016 |
| 1011258-06 | 0114 | 11/04/2010 | 18 | 1133 | 594 | 665.3 | 29 | 0.044 | ND | <0.000038 | ND | <0.000038 |
| 1011258-09 | 0117 | 11/05/2010 | 17 | 1133 | 414 | 463.7 | 16 | 0.035 | ND | <0.000054 | ND | <0.000054 |
| 1011258-12 | 0120 | 11/05/2010 | 18 | 1133 | 408 | 457.0 | 15 | 0.033 | ND | <0.000055 | ND | <0.000055 |
| 1011258-15 | 0123 | 11/08/2010 | 17 | 1133 | 1374 | 1538.9 | 45 | 0.029 | ND | <0.000016 | ND | <0.000016 |
| 1011258-18 | 0126 | 11/08/2010 | 18 | 1133 | 1392 | 1607.8 | 28 | 0.017 | ND | <0.000016 | ND | <0.000016 |
| 1011334-03 | 0129 | 11/09/2010 | 17 | 1133 | 1380 | 1545.6 | 30 | 0.019 | ND | <0.000016 | ND | <0.000016 |
| 1011334-06 | 0132 | 11/09/2010 | 18 | 1133 | 1606 | 1434.0 | 18 | 0.011 | ND | <0.000016 | ND | <0.000016 |
| 1011334-09 | 0135 | 11/10/2010 | 17 | 1133 | 1680 | 1500.0 | 25 | 0.015 | ND | <0.000015 | ND | <0.000015 |
| 1011334-12 | 0138 | 11/10/2010 | 18 | 1133 | 852 | 954.2 | 15 | 0.016 | ND | <0.000026 | ND | <0.000026 |
| 1011376-03 | 0141 | 11/11/2010 | 17 | 1133 | 1416 | 1585.9 | 41 | 0.029 | ND | <0.000018 | ND | <0.000018 |
| 1011376-06 | 0144 | 11/11/2010 | 18 | 1133 | 1326 | 1485.1 | 25 | 0.017 | ND | <0.000017 | ND | <0.000017 |
| 1011376-09 | 0147 | 11/12/2010 | 17 | 1133 | 348 | 389.8 | 15 | 0.038 | ND | <0.000064 | ND | <0.000064 |
| 1011376-12 | 0150 | 11/12/2010 | 18 | 1133 | 330 | 369.6 | 8.0 | 0.022 | ND | <0.000068 | ND | <0.000068 |
| 1011484-03 | 0153 | 11/15/2010 | 17 | 1133 | 1434 | 1586.0 | 77 | 0.049 | 50 | 0.000031 | ND | <0.000016 |
| 1011484-06 | 0156 | 11/15/2010 | 18 | 1133 | 924 | 517.4 | 27 | 0.052 | ND | <0.000048 | ND | <0.000048 |
| 1011484-09 | 0159 | 11/16/2010 | 17 | 1133 | 1428 | 1599.4 | 57 | 0.036 | ND | <0.000016 | ND | <0.000016 |
| 1011484-12 | 0162 | 11/16/2010 | 18 | 1161 | 516 | 585.1 | 17 | 0.029 | ND | <0.000043 | ND | <0.000043 |
| 1011484-15 | 0165 | 11/17/2010 | 17 | 1133 | 1440 | 1612.8 | 45 | 0.028 | ND | <0.000016 | ND | <0.000016 |
| 1011484-18 | 0168 | 11/17/2010 | 18 | 1133 | 1440 | 1612.8 | 34 | 0.021 | ND | <0.000016 | ND | <0.000016 |
| 1011547-03 | 0171 | 11/18/2010 | 17 | 1133 | 1428 | 1599.4 | 38 | 0.024 | ND | <0.000016 | ND | <0.000016 |
| 1011547-06 | 0174 | 11/18/2010 | 18 | 1133 | 1416 | 1585.9 | 32 | 0.020 | ND | <0.000016 | ND | <0.000016 |
| 1011547-09 | 0177 | 11/19/2010 | 17 | 1133 | 384 | 430.1 | 17 | 0.040 | ND | <0.000058 | ND | <0.000058 |
| 1011547-12 | 0180 | 11/19/2010 | 18 | 1133 | 378 | 423.4 | 4.0 | 0.0094 | ND | <0.000059 | ND | <0.000059 |
| 1011649-03 | 0183 | 11/24/2010 | 17 | 1133 | 426 | 477.1 | 6.0 | 0.013 | ND | <0.000052 | ND | <0.000052 |
| 1011649-06 | 0186 | 11/24/2010 | 18 | 1133 | 684 | 766.1 | 1.0 | 0.0013 | ND | <0.000033 | ND | <0.000033 |
| 1012048-03 | 0189 | 11/29/2010 | 17 | 1132.80 | 1,434 | 1606.1 | 39 | 0.024 | 27 | 0.000017 | ND | <0.000016 |
| 1012048-06 | 0192 | 11/29/2010 | 18 | 1132.80 | 1,134 | 1270.1 | 10 | 0.0079 | ND | <0.000020 | ND | <0.000020 |
| 1012048-09 | 0195 | 11/30/2010 | 17 | 1132.80 | 1,440 | 1612.8 | 55 | 0.034 | 28 | 0.000018 | ND | <0.000016 |
| 1012048-12 | 0198 | 11/30/2010 | 18 | 1132.80 | 1,440 | 1612.8 | 29 | 0.018 | ND | <0.000016 | ND | <0.000016 |
| 1012048-15 | 0201 | 12/01/2010 | 17 | 1132.80 | 1,410 | 1579.2 | 46 | 0.029 | ND | <0.000016 | ND | <0.000016 |
| 1012048-18 | 0204 | 12/01/2010 | 18 | 1132.80 | 1,374 | 1538.9 | 26 | 0.017 | ND | <0.000016 | ND | <0.000016 |
| 1012173-03 | 0207 | 12/02/2010 | 17 | 1132.80 | 1410 | 1579.2 | 37 | 0.023 | ND | <0.000016 | ND | <0.000016 |
| 1012173-06 | 0210 | 12/02/2010 | 18 | 1132.80 | 1338 | 1498.6 | 26 | 0.017 | ND | <0.000017 | ND | <0.000017 |
| 1012173-09 | 0213 | 12/06/2010 | 17 | 1132.80 | 1452 | 1626.2 | 40 | 0.025 | ND | <0.000015 | ND | <0.000015 |
| 1012173-12 | 0216 | 12/06/2010 | 18 | 1132.80 | 1284 | 1436.3 | 23 | 0.020 | ND | <0.000022 | ND | <0.000022 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1012233-03 | 0219 | 12/07/2010 | 17 | 1161.12 | 1434 | 1626.2 | 39 | 0.024 | ND | <0.000015 | ND | <0.000015 |
| 1012233-06 | 0222 | 12/07/2010 | 18 | 1132.80 | 1398 | 1565.8 | 23 | 0.015 | ND | <0.000016 | ND | <0.000016 |
| 1012325-03 | 0225 | 12/13/2010 | 17 | 1132.80 | 1,458 | 1633.0 | 47 | 0.029 | ND | <0.000015 | ND | <0.000015 |
| 1012325-06 | 0228 | 12/13/2010 | 18 | 1132.80 | 1,452 | 1626.2 | 66 | 0.041 | 43 | 0.000026 | ND | <0.000015 |
| 1012394-03 | 0231 | 12/14/2010 | 17 | 1132.80 | 1,404 | 1572.5 | 10 | 0.0064 | ND | <0.000016 | ND | <0.000016 |
| 1012394-06 | 0234 | 12/14/2010 | 18 | 1132.80 | 1,404 | 1572.5 | 27 | 0.017 | ND | <0.000016 | ND | <0.000016 |
| 1012394-09 | 0237 | 12/15/2010 | 17 | 1132.80 | 1,446 | 1619.5 | 39 | 0.024 | ND | <0.000015 | ND | <0.000015 |
| 1012394-12 | 0240 | 12/15/2010 | 18 | 1132.80 | 1,446 | 1619.5 | 27 | 0.017 | ND | <0.000015 | ND | <0.000015 |
| 1012451-03 | 0243 | 12/16/2010 | 17 | 1132.80 | 1,446 | 1619.5 | 38 | 0.023 | ND | <0.000015 | ND | <0.000015 |
| 1012451-06 | 0246 | 12/16/2010 | 18 | 1132.80 | 1440 | 1612.8 | 15 | 0.0093 | ND | <0.000016 | ND | <0.000016 |
| 1101090-03 | 0249 | 01/03/2011 | 17 | 1132.80 | 1416 | 1585.9 | 46 | 0.029 | 30 | 0.000019 | ND | <0.000016 |
| 1101090-06 | 0252 | 01/03/2011 | 18 | 1132.80 | 1422 | 1592.6 | 30 | 0.019 | 34 | 0.000021 | ND | <0.000016 |
| 1101090-09 | 0255 | 01/04/2011 | 17 | 1132.80 | 1452 | 1626.2 | 33 | 0.020 | ND | <0.000015 | ND | <0.000015 |
| 1101090-12 | 0258 | 01/04/2011 | 18 | 1132.80 | 1416 | 1585.9 | 22 | 0.014 | 31 | 0.000020 | ND | <0.000016 |
| 1101090-15 | 0261 | 01/05/2011 | 17 | 1132.80 | 1410 | 1579.2 | 27 | 0.017 | ND | <0.000016 | ND | <0.000016 |
| 1101090-18 | 0264 | 01/05/2011 | 20 | 1132.80 | 1386 | 1552.3 | 14 | 0.0090 | ND | <0.000016 | ND | <0.000016 |
| 1101152-03 | 0267 | 01/06/2011 | 17 | 1132.80 | 1434 | 1606.1 | 41 | 0.026 | ND | <0.000016 | ND | <0.000016 |
| 1101152-06 | 0270 | 01/06/2011 | 20 | 1132.80 | 1428 | 1599.4 | 41 | 0.026 | ND | <0.000016 | ND | <0.000016 |
| 1101152-09 | 0273 | 01/07/2011 | 17 | 1132.80 | 516 | 577.9 | 12 | 0.021 | ND | <0.000043 | ND | <0.000043 |
| 1101152-12 | 0276 | 01/07/2011 | 20 | 1132.80 | 504 | 564.5 | 7.0 | 0.012 | ND | <0.000044 | ND | <0.000044 |
| 1101221-02 | 0279 | 01/10/2011 | 17 | 1132.80 | 1434 | 1606.1 | 34 | 0.021 | ND | <0.000016 | ND | <0.000016 |
| 1101221-05 | 0282 | 01/10/2011 | 20 | 1132.80 | 1434 | 1606.1 | 29 | 0.018 | ND | <0.000016 | ND | <0.000016 |
| 1101221-08 | 0285 | 01/11/2011 | 17 | 1132.80 | 1446 | 1619.5 | 32 | 0.020 | ND | <0.000015 | ND | <0.000015 |
| 1101221-11 | 0288 | 01/11/2011 | 20 | 1132.80 | 1410 | 1579.2 | 29 | 0.018 | ND | <0.000016 | ND | <0.000016 |
| 1101221-14 | 0291 | 01/12/2011 | 17 | 1132.80 | 1452 | 1626.2 | 58 | 0.036 | 36 | 0.000022 | ND | <0.000015 |
| 1101221-17 | 0294 | 01/12/2011 | 20 | 1132.80 | 1446 | 1619.5 | 23 | 0.014 | ND | <0.000015 | ND | <0.000015 |
| 1101323-03 | 0297 | 01/13/2011 | 17 | 1132.80 | 1446 | 1619.5 | 13 | 0.0080 | ND | <0.000015 | ND | <0.000015 |
| 1101323-06 | 0300 | 01/13/2011 | 20 | 1132.80 | 1446 | 1619.5 | 12 | 0.0074 | ND | <0.000015 | ND | <0.000015 |
| 1101323-09 | 0303 | 01/14/2011 | 17 | 1161.12 | 420 | 476.3 | 3.0 | 0.0063 | ND | <0.000052 | ND | <0.000052 |
| 1101323-12 | 0306 | 01/14/2011 | 20 | 1132.80 | 400.2 | 448.2 | 2.0 | 0.0045 | ND | <0.000056 | ND | <0.000056 |
| 1101323-15 | 0309 | 01/17/2011 | 17 | 1203.60 | 1458 | 1684.0 | 29 | 0.017 | ND | <0.000015 | ND | <0.000015 |
| 1101323-18 | 0312 | 01/17/2011 | 20 | 1132.80 | 1494 | 1652.4 | 30 | 0.018 | ND | <0.000015 | ND | <0.000015 |
| 1101429-03 | 0315 | 01/18/2011 | 17 | 1132.80 | 1422 | 1592.6 | 55 | 0.035 | 26 | 0.000016 | ND | <0.000016 |
| 1101429-06 | 0318 | 01/18/2011 | 20 | 1132.80 | 1416 | 1585.9 | 37 | 0.023 | ND | <0.000016 | ND | <0.000016 |
| 1101429-09 | 0321 | 01/19/2011 | 17 | 1132.80 | 1440 | 1612.8 | 45 | 0.028 | ND | <0.000016 | ND | <0.000016 |
| 1101429-12 | 0324 | 01/19/2011 | 20 | 1104.48 | 1446 | 1579.0 | 32 | 0.020 | ND | <0.000016 | ND | <0.000016 |
| 1101447-03 | 0327 | 01/20/2011 | 17 | 1132.80 | 1380 | 1593.9 | 51 | 0.032 | 34 | 0.000021 | ND | <0.000016 |
| 1101447-06 | 0330 | 01/20/2011 | 20 | 1132.80 | 1374 | 1538.9 | 37 | 0.024 | ND | <0.000016 | ND | <0.000016 |
| 1101447-09 | 0333 | 01/21/2011 | 17 | 1203.60 | 456 | 526.7 | 19 | 0.036 | ND | <0.000047 | ND | <0.000047 |
| 1101447-12 | 0336 | 01/21/2011 | 20 | 1203.60 | 408 | 485.5 | 11 | 0.023 | ND | <0.000051 | ND | <0.000051 |
| 1101561-03 | 0339 | 01/25/2011 | 17 | 1132.80 | 1434 | 1606.1 | 67 | 0.042 | 35 | 0.000022 | 33 | 0.000020 |
| 1101561-06 | 0342 | 01/25/2011 | 20 | 1132.80 | 1434 | 1586.0 | 51 | 0.032 | ND | <0.000016 | 32 | 0.000020 |
| 1101561-09 | 0345 | 01/26/2011 | 17 | 1132.80 | 1434 | 1606.1 | 72 | 0.045 | 42 | 0.000026 | ND | <0.000016 |
| 1101561-12 | 0348 | 01/26/2011 | 20 | 1132.80 | 1440 | 1592.6 | 48 | 0.030 | ND | <0.000016 | ND | <0.000016 |
| 1102066-03 | 0351 | 01/27/2011 | 17 | 1138.46 | 1416 | 1593.8 | 57 | 0.036 | 29 | 0.000018 | ND | <0.000016 |
| 1102066-06 | 0354 | 01/27/2011 | 20 | 1161.12 | 1410 | 1598.9 | 37 | 0.023 | ND | <0.000016 | ND | <0.000016 |
| 1102066-09 | 0357 | 01/28/2011 | 17 | 1132.80 | 420 | 470.4 | 13 | 0.028 | ND | <0.000053 | ND | <0.000053 |
| 1102066-12 | 0360 | 01/28/2011 | 20 | 1161.12 | 396 | 449.1 | 24 | 0.053 | ND | <0.000056 | ND | <0.000056 |
| 1102164-03 | 0363 | 01/31/2011 | 17 | 1132.8 | 1806 | 2022.7 | 34 | 0.017 | ND | <0.000012 | ND | <0.000012 |
| 1102164-06 | 0366 | 01/31/2011 | 20 | 1161.1 | 1446 | 1680.3 | 29 | 0.017 | ND | <0.000015 | ND | <0.000015 |
| 1102164-09 | 0369 | 02/01/2011 | 17 | 1132.8 | 1050 | 1176.0 | 55 | 0.047 | 31 | 0.000026 | ND | <0.000021 |
| 1102164-12 | 0372 | 02/01/2011 | 20 | 1132.8 | 1410 | 1579.2 | 51 | 0.032 | 25 | 0.000016 | ND | <0.000016 |
| 1102164-15 | 0375 | 02/02/2011 | 17 | 1132.8 | 1440 | 1612.8 | 73 | 0.045 | 48 | 0.000030 | ND | <0.000016 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1102164-18 | 0378 | 02/02/2011 | 20 | 1161.1 | 1446 | 1639.8 | 27 | 0.016 | ND | <0.000015 | ND | <0.000015 |
| 1102164-21 | 0381 | 02/03/2011 | 17 | 1132.8 | 1422 | 1592.6 | 50 | 0.031 | 27 | 0.000017 | ND | <0.000016 |
| 1102164-24 | 0384 | 02/03/2011 | 20 | 1132.8 | 1434 | 1606.1 | 29 | 0.018 | ND | <0.000016 | ND | <0.000016 |
| 1102271-06 | 0390 | 02/04/2011 | 20 | 1132.8 | 378 | 423.4 | 12 | 0.028 | ND | <0.000059 | ND | <0.000059 |
| 1102271-09 | 0393 | 02/07/2011 | 17 | 1137.0 | 1446 | 1625.6 | 120 | 0.072 | 69 | 0.000043 | ND | <0.000015 |
| 1102271-12 | 0396 | 02/07/2011 | 20 | 1147.0 | 1446 | 1629.6 | 89 | 0.055 | 45 | 0.000027 | ND | <0.000015 |
| 1102271-15 | 0399 | 02/08/2011 | 17 | 1189.4 | 1380 | 1584.2 | 47 | 0.030 | 44 | 0.000028 | ND | <0.000016 |
| 1102271-18 | 0402 | 02/08/2011 | 20 | 1161.1 | 1374 | 1558.1 | 25 | 0.016 | ND | <0.000016 | ND | <0.000016 |
| 1102465-03 | 0405 | 02/09/2011 | 17 | 1132.8 | 1434 | 1586.0 | 44 | 0.028 | 28 | 0.000018 | ND | <0.000016 |
| 1102465-06 | 0408 | 02/09/2011 | 20 | 1132.8 | 1434 | 1606.1 | 24 | 0.015 | ND | <0.000016 | ND | <0.000016 |
| 1102465-09 | 0411 | 02/10/2011 | 17 | 1132.8 | 1404 | 1552.8 | 51 | 0.033 | 31 | 0.000020 | ND | <0.000016 |
| 1102465-12 | 0414 | 02/10/2011 | 20 | 1132.8 | 1404 | 1572.5 | 36 | 0.023 | ND | <0.000016 | ND | <0.000016 |
| 1102465-15 | 0417 | 02/11/2011 | 17 | 1132.8 | 426 | 468.2 | 29 | 0.062 | ND | <0.000053 | ND | <0.000053 |
| 1102465-18 | 0420 | 02/11/2011 | 20 | 1132.8 | 402 | 444.6 | 13 | 0.029 | ND | <0.000056 | ND | <0.000056 |
| 1102668-03 | 0423 | 02/21/2011 | 17 | 1132.8 | 1368 | 1532.2 | 46 | 0.030 | ND | <0.000016 | ND | <0.000016 |
| 1102668-06 | 0426 | 02/21/2011 | 20 | 1132.8 | 1326 | 1485.1 | 21 | 0.014 | ND | <0.000017 | ND | <0.000017 |
| 1102668-09 | 0429 | 02/22/2011 | 17 | 1132.8 | 1506 | 1686.7 | 49 | 0.029 | ND | <0.000015 | ND | <0.000015 |
| 1102668-12 | 0432 | 02/22/2011 | 20 | 1132.8 | 1512 | 1693.4 | 38 | 0.022 | ND | <0.000015 | ND | <0.000015 |
| 1102668-15 | 0435 | 02/23/2011 | 17 | 1132.8 | 1344 | 1505.3 | 44 | 0.029 | ND | <0.000017 | ND | <0.000017 |
| 1102668-18 | 0438 | 02/23/2011 | 20 | 1132.8 | 1350 | 1512.0 | 25 | 0.017 | ND | <0.000017 | ND | <0.000017 |
| 1103069-03 | 0441 | 02/28/2011 | 17 | 1132.8 | 1434 | 1606.1 | 47 | 0.029 | ND | <0.000016 | ND | <0.000016 |
| 1103069-06 | 0444 | 02/28/2011 | 20 | 1132.8 | 1410 | 1579.2 | 22 | 0.014 | ND | <0.000016 | ND | <0.000016 |
| 1103069-09 | 0447 | 03/01/2011 | 17 | 1161.1 | 1452 | 1646.6 | 38 | 0.023 | ND | <0.000015 | ND | <0.000015 |
| 1103069-12 | 0450 | 03/01/2011 | 20 | 1132.8 | 1470 | 1625.8 | 31 | 0.019 | ND | <0.000015 | ND | <0.000015 |
| 1103188-03 | 0453 | 03/03/2011 | 17 | 1132.8 | 1446 | 1619.5 | 37 | 0.023 | ND | <0.000015 | ND | <0.000015 |
| 1103188-06 | 0456 | 03/03/2011 | 20 | 1132.8 | 1482 | 1655.7 | 20 | 0.012 | ND | <0.000015 | ND | <0.000015 |
| 1103188-09 | 0459 | 03/04/2011 | 17 | 1132.8 | 396 | 443.5 | 13 | 0.029 | ND | <0.000056 | ND | <0.000056 |
| 1103188-11 | 0462 | 03/04/2011 | 20 | 1132.8 | 396 | 443.5 | 10 | 0.023 | ND | <0.000056 | ND | <0.000056 |
| 1103545-03 | 0465 | 03/07/2011 | 17 | 1132.8 | 1476 | 1653.1 | 21 | 0.013 | ND | <0.000015 | ND | <0.000015 |
| 1103545-06 | 0468 | 03/07/2011 | 20 | 1132.8 | 1374 | 1538.9 | 26 | 0.017 | ND | <0.000016 | ND | <0.000016 |
| 1103545-09 | 0471 | 03/08/2011 | 17 | 1132.8 | 1344 | 1505.3 | 35 | 0.023 | ND | <0.000017 | ND | <0.000017 |
| 1103545-12 | 0474 | 03/08/2011 | 20 | 1132.8 | 1278 | 1422.4 | 26 | 0.018 | ND | <0.000018 | ND | <0.000018 |
| 1103545-15 | 0477 | 03/09/2011 | 17 | 1132.8 | 1434 | 1606.1 | 43 | 0.027 | ND | <0.000016 | ND | <0.000016 |
| 1103545-18 | 0480 | 03/09/2011 | 20 | 1132.8 | 1434 | 1606.1 | 26 | 0.016 | ND | <0.000016 | ND | <0.000016 |
| 1103545-21 | 0483 | 03/10/2011 | 17 | 1189.4 | 1410 | 1658.2 | 36 | 0.022 | ND | <0.000015 | ND | <0.000015 |
| 1103545-24 | 0486 | 03/10/2011 | 20 | 1132.8 | 1458 | 1633.0 | 28 | 0.017 | ND | <0.000015 | ND | <0.000015 |
| 1103545-27 | 0489 | 03/11/2011 | 17 | 1132.8 | 420 | 470.4 | 16 | 0.032 | ND | <0.000051 | ND | <0.000051 |
| 1103545-30 | 0492 | 03/11/2011 | 20 | 1132.8 | 378 | 423.4 | 21 | 0.050 | ND | <0.000059 | ND | <0.000059 |
| 1103545-33 | 0495 | 03/17/2011 | 17 | 1132.8 | 1398 | 1546.2 | 62 | 0.040 | ND | <0.000016 | ND | <0.000016 |
| 1103545-36 | 0498 | 03/17/2011 | 20 | 1132.8 | 1398 | 1565.8 | 43 | 0.027 | ND | <0.000016 | ND | <0.000016 |
| 1103791-03 | 0501 | 03/28/2011 | 17 | 1132.8 | 1476 | 1653.1 | 54 | 0.033 | ND | <0.015 | ND | <0.015 |
| 1103791-06 | 0504 | 03/28/2011 | 20 | 1132.8 | 1476 | 1653.1 | 35 | 0.021 | ND | <0.015 | ND | <0.015 |
| 1103791-09 | 0507 | 03/29/2011 | 17 | 1132.8 | 1452 | 1626.2 | 59 | 0.037 | 29 | 0.018 | ND | <0.015 |
| 1103791-12 | 0510 | 03/29/2011 | 20 | 1132.8 | 1440 | 1612.8 | 62 | 0.038 | 43 | 0.027 | 35 | 0.022 |
| 1104064-03 | 0513 | 03/30/2011 | 17 | 1132.8 | 1428 | 1579.4 | 72 | 0.045 | 48 | 0.000031 | ND | <0.000016 |
| 1104064-06 | 0516 | 03/30/2011 | 20 | 1132.8 | 1434 | 1565.9 | 38 | 0.024 | 28 | 0.000018 | ND | <0.000016 |
| 1104064-09 | 0519 | 03/31/2011 | 17 | 1132.8 | 1410 | 1579.2 | 65 | 0.041 | 42 | 0.000027 | ND | <0.000016 |
| 1104064-12 | 0522 | 03/31/2011 | 20 | 1132.8 | 1374 | 1538.9 | 60 | 0.039 | 38 | 0.000025 | ND | <0.000016 |
| 1104064-15 | 0525 | 04/01/2011 | 17 | 1132.8 | 408 | 451.2 | 20 | 0.044 | ND | <0.000055 | 5.5 | <0.003 |
| 1104064-18 | 0528 | 04/01/2011 | 20 | 1132.8 | 408 | 451.2 | 8.0 | 0.018 | ND | <0.000055 | 7.5 | 0.0044 |
| 1104167-03 | 0531 | 04/04/2011 | 17 | 1132.8 | 1404 | 1572.5 | 92 | 0.059 | 55 | 0.035 | ND | <0.016 |
| 1104167-06 | 0534 | 04/04/2011 | 20 | 1132.8 | 408 | 451.2 | 57 | 0.034 | 28 | 0.017 | ND | <0.015 |
| 1104167-09 | 0537 | 04/05/2011 | 17 | 1132.8 | 1452 | 1626.2 | 95 | 0.059 | 34 | 0.021 | ND | <0.015 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1104167-12 | 0540 | 04/05/2011 | 20 | 1132.8 | 1416 | 1585.9 | 84 | 0.053 | 36 | 0.023 | ND | <0.016 |
| 1104167-15 | 0543 | 04/06/2011 | 17 | 1132.8 | 1422 | 1592.6 | 120 | 0.074 | 68 | 0.043 | ND | <0.016 |
| 1104167-18 | 0546 | 04/06/2011 | 20 | 1132.8 | 984 | 1102.1 | 140 | 0.12 | 120 | 0.11 | 64 | 0.058 |
| 1104340-03 | 0549 | 04/08/2011 | 17 | 1161.1 | 444 | 503.5 | 6.9 | 0.014 | ND | <0.050 | ND | <0.050 |
| 1104340-06 | 0552 | 04/08/2011 | 20 | 1132.8 | 402 | 450.2 | 2.1 | 0.0047 | ND | <0.056 | ND | <0.056 |
| 1104340-09 | 0555 | 04/11/2011 | 17 | 1132.8 | 1428 | 1619.4 | 66 | 0.040 | 35 | 0.022 | ND | <0.015 |
| 1104340-12 | 0558 | 04/11/2011 | 20 | 1132.8 | 1422 | 1612.5 | 44 | 0.027 | ND | <0.016 | ND | <0.016 |
| 1104340-15 | 0561 | 04/12/2011 | 17 | 1132.8 | 1392 | 1559.0 | 69 | 0.045 | 37 | 0.024 | ND | <0.016 |
| 1104340-18 | 0564 | 04/12/2011 | 20 | 1132.8 | 1434 | 1606.1 | 110 | 0.067 | 110 | 0.066 | 40 | 0.024 |
| 1104472-03 | 0567 | 04/13/2011 | 14 | 1132.8 | 1434 | 1606.1 | 30 | 0.019 | ND | <0.016 | ND | <0.016 |
| 1104472-06 | 0570 | 04/13/2011 | 20 | 1161.1 | 1494 | 1694.2 | 32 | 0.021 | ND | <0.016 | ND | <0.016 |
| 1104472-09 | 0573 | 04/14/2011 | 14 | 1132.8 | 1434 | 1606.1 | 40 | 0.025 | ND | <0.016 | ND | <0.016 |
| 1104472-12 | 0576 | 04/14/2011 | 20 | 1132.8 | 1500 | 1680.0 | 34 | 0.020 | ND | <0.015 | ND | <0.015 |
| 1104472-15 | 0579 | 04/15/2011 | 14 | 1132.8 | 1392 | 1559.0 | 35 | 0.022 | ND | <0.016 | ND | <0.016 |
| 1104472-18 | 0582 | 04/15/2011 | 20 | 1132.8 | 1326 | 1485.1 | 18 | 0.012 | ND | <0.017 | ND | <0.017 |
| 1104472-21 | 0585 | 04/16/2011 | 14 | 1132.8 | 348 | 389.8 | 4.5 | 0.012 | ND | <0.064 | ND | <0.064 |
| 1104472-24 | 0588 | 04/16/2011 | 20 | 1132.8 | 408 | 457.0 | ND | <0.0022 | ND | <0.055 | ND | <0.055 |
| 1104472-27 | 0591 | 04/18/2011 | 14 | 1132.8 | 1416 | 1585.9 | 14 | 0.0090 | ND | <0.016 | ND | <0.016 |
| 1104472-30 | 0594 | 04/18/2011 | 20 | 1132.8 | 1434 | 1606.1 | 4.0 | 0.0025 | ND | <0.016 | ND | <0.016 |
| 1104642-03 | 0597 | 04/19/2011 | 14 | 1132.8 | 1476 | 1653.1 | 35 | 0.021 | ND | <0.015 | ND | <0.015 |
| 1104642-06 | 0600 | 04/19/2011 | 20 | 1132.8 | 1458 | 1633.0 | 11 | 0.0068 | ND | <0.015 | ND | <0.015 |
| 1104642-09 | 0603 | 04/20/2011 | 14 | 1132.8 | 1380 | 1545.6 | 12 | 0.0080 | ND | <0.016 | ND | <0.016 |
| 1104642-12 | 0606 | 04/20/2011 | 20 | 1132.8 | 1416 | 1585.9 | 9.0 | 0.0057 | ND | <0.016 | ND | <0.016 |
| 1104642-15 | 0609 | 04/21/2011 | 14 | 1132.8 | 396 | 454.6 | 6.7 | 0.015 | ND | <0.055 | ND | <0.055 |
| 1104713-03 | 0615 | 04/26/2011 | 14 | 1132.8 | 1416 | 1585.9 | 66 | 0.042 | 26 | 0.016 | ND | <0.016 |
| 1104713-06 | 0618 | 04/26/2011 | 20 | 1161.1 | 1422 | 1612.5 | 48 | 0.030 | ND | <0.016 | ND | <0.016 |
| 1104713-09 | 0621 | 04/27/2011 | 14 | 1132.8 | 1422 | 1592.6 | 68 | 0.043 | 31 | 0.019 | ND | <0.016 |
| 1104713-12 | 0624 | 04/27/2011 | 20 | 1132.8 | 1074 | 1202.9 | 29 | 0.024 | ND | <0.021 | ND | <0.021 |
| 1105059-03 | 0627 | 04/28/2011 | 14 | 1132.8 | 1380 | 1545.6 | 98 | 0.063 | 57 | 0.037 | ND | <0.016 |
| 1105059-06 | 0630 | 04/28/2011 | 20 | 1132.8 | 1392 | 1549.3 | 70 | 0.045 | 49 | 0.032 | ND | <0.016 |
| 1105059-09 | 0633 | 04/29/2011 | 14 | 1132.8 | 462 | 517.4 | 18 | 0.035 | ND | <0.048 | ND | <0.048 |
| 1105059-12 | 0636 | 04/29/2011 | 20 | 1132.8 | 384 | 430.1 | 9.1 | 0.021 | ND | <0.058 | ND | <0.058 |
| 1105193-03 | 0639 | 05/02/2011 | 14 | 1132.8 | 1380 | 1545.6 | 67 | 0.043 | 31 | 0.020 | ND | <0.016 |
| 1105193-06 | 0642 | 05/02/2011 | 20 | 1132.8 | 1320 | 1478.4 | 59 | 0.040 | 38 | 0.026 | ND | <0.017 |
| 1105193-09 | 0645 | 05/03/2011 | 14 | 1132.8 | 1380 | 1545.6 | 75 | 0.048 | 28 | 0.018 | ND | <0.016 |
| 1105193-12 | 0648 | 05/03/2011 | 20 | 1104.5 | 1476 | 1611.8 | 97 | 0.060 | 72 | 0.045 | 32 | 0.020 |
| 1105193-15 | 0651 | 05/04/2011 | 14 | 1132.8 | 1428 | 1599.4 | 74 | 0.046 | 34 | 0.021 | ND | <0.016 |
| 1105193-18 | 0654 | 05/04/2011 | 20 | 1132.8 | 1446 | 1619.5 | 64 | 0.040 | 35 | 0.022 | ND | <0.015 |
| 1105193-21 | 0657 | 05/05/2011 | 14 | 1118.6 | 1470 | 1625.8 | 110 | 0.067 | 39 | 0.024 | ND | <0.015 |
| 1105193-24 | 0660 | 05/05/2011 | 20 | 1132.8 | 1194 | 1337.3 | 110 | 0.079 | 70 | 0.053 | 38 | 0.028 |
| 1109373-03 | 0663 | 09/12/2011 | 17 | 1132.8 | 1422 | 1592.6 | 100 | 0.064 | 62 | 0.039 | ND | <0.016 |
| 1109373-06 | 0666 | 09/12/2011 | 22 | 1132.8 | 1134 | 1270.1 | 56 | 0.044 | 36 | 0.029 | ND | <0.020 |
| 1109373-09 | 0669 | 09/13/2011 | 17 | 1132.8 | 1380 | 1545.6 | 81 | 0.052 | 50 | 0.032 | ND | <0.016 |
| 1109373-12 | 0672 | 09/13/2011 | 22 | 1132.8 | 1374 | 1538.9 | 47 | 0.030 | ND | <0.016 | ND | <0.016 |
| 1109373-15 | 0675 | 09/14/2011 | 17 | 1175.3 | 1506 | 1718.3 | 96 | 0.056 | 51 | 0.030 | ND | <0.015 |
| 1109373-18 | 0678 | 09/14/2011 | 22 | 1132.8 | 1506 | 1686.7 | 41 | 0.024 | ND | <0.015 | ND | <0.015 |
| 1109536-03 | 0681 | 09/15/2011 | 17 | 1139.9 | 1512 | 1704.0 | 94 | 0.060 | 55 | 0.035 | ND | <0.016 |
| 1109536-06 | 0684 | 09/15/2011 | 22 | 1111.6 | 1500 | 1648.5 | 60 | 0.039 | 37 | 0.023 | ND | <0.016 |
| 1109536-09 | 0687 | 09/16/2011 | 17 | 1132.8 | 420 | 470.4 | 48 | 0.10 | 36 | 0.077 | ND | <0.053 |
| 1109536-12 | 0690 | 09/16/2011 | 22 | 1132.8 | 396 | 438.0 | 21 | 0.049 | ND | <0.057 | ND | <0.057 |
| 1109538-03 | 0693 | 09/19/2011 | 17 | 1132.8 | 1398 | 1565.8 | 100 | 0.067 | 64 | 0.041 | ND | <0.016 |
| 1109538-06 | 0696 | 09/19/2011 | 22 | 1132.8 | 396 | 438.0 | 65 | 0.041 | 41 | 0.026 | ND | <0.016 |
| 1109538-09 | 0699 | 09/20/2011 | 17 | 1132.8 | 1398 | 1565.8 | 78 | 0.047 | 54 | 0.033 | ND | <0.015 |
| 1109538-12 | 0702 | 09/20/2011 | 22 | 1132.8 | 1416 | 1585.9 | 63 | 0.039 | 46 | 0.028 | ND | <0.015 |
| 1109538-15 | 0705 | 09/21/2011 | 17 | 1132.8 | 1398 | 1565.8 | 68 | 0.044 | 51 | 0.032 | ND | <0.016 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1109538-18 | 0708 | 09/21/2011 | 22 | 1132.8 | 1398 | 1565.8 | 120 | 0.077 | 110 | 0.071 | 34 | 0.022 |
| 1109592-03 | 0711 | 09/22/2011 | 17 | 1132.8 | 1368 | 1532.2 | 40 | 0.026 | 30 | 0.020 | ND | <0.016 |
| 1109592-06 | 0714 | 09/22/2011 | 22 | 1132.8 | 1398 | 1565.8 | 39 | 0.026 | 35 | 0.023 | ND | <0.016 |
| 1109592-09 | 0717 | 09/23/2011 | 17 | 1132.8 | 420 | 464.5 | 20 | 0.044 | ND | <0.054 | ND | <0.054 |
| 1109592-12 | 0720 | 09/23/2011 | 22 | 1132.8 | 414 | 457.9 | 20 | 0.043 | ND | <0.055 | ND | <0.055 |
| 1109701-03 | 0723 | 09/26/2011 | 17 | 1161.1 | 1440 | 1633.0 | 69 | 0.043 | 66 | 0.041 | ND | <0.016 |
| 1109701-06 | 0726 | 09/26/2011 | 22 | 1132.8 | 1440 | 1592.6 | 42 | 0.026 | 33 | 0.021 | ND | <0.016 |
| 1109701-09 | 0729 | 09/27/2011 | 17 | 1132.8 | 1404 | 1572.5 | 62 | 0.040 | 45 | 0.029 | ND | <0.016 |
| 1109701-12 | 0732 | 09/27/2011 | 22 | 1132.8 | 1404 | 1552.8 | 50 | 0.032 | 32 | 0.021 | ND | <0.016 |
| 1109701-15 | 0735 | 09/28/2011 | 17 | 1132.8 | 1440 | 1612.8 | 71 | 0.044 | 52 | 0.032 | ND | <0.016 |
| 1109701-18 | 0738 | 09/28/2011 | 22 | 1132.8 | 1434 | 1606.1 | 58 | 0.036 | 35 | 0.022 | ND | <0.016 |
| 1110043-03 | 0741 | 09/29/2011 | 17 | 1132.8 | 1440 | 1612.8 | 70 | 0.044 | 49 | 0.031 | ND | <0.016 |
| 1110043-06 | 0744 | 09/29/2011 | 22 | 1132.8 | 1434 | 1606.1 | 62 | 0.039 | 56 | 0.035 | ND | <0.016 |
| 1110043-09 | 0747 | 09/30/2011 | 17 | 1132.8 | 414 | 463.7 | 29 | 0.062 | 27 | 0.057 | ND | <0.054 |
| 1110043-12 | 0750 | 09/30/2011 | 22 | 1132.8 | 408 | 457.0 | 11 | 0.024 | ND | <0.055 | ND | <0.055 |
| 1110175-03 | 0753 | 10/03/2011 | 17 | 1161.1 | 1440 | 1633.0 | 21 | 0.013 | ND | <0.015 | ND | <0.015 |
| 1110175-06 | 0756 | 10/03/2011 | 22 | 1132.8 | 1434 | 1606.1 | 14 | 0.0090 | ND | <0.016 | ND | <0.016 |
| 1110605-03 | 0759 | 10/20/2011 | 17 | 1132.8 | 1452 | 1626.2 | 52 | 0.032 | 26 | 0.016 | ND | <0.015 |
| 1110605-06 | 0762 | 10/20/2011 | 22 | 1132.8 | 1458 | 1633.0 | 46 | 0.028 | ND | <0.015 | ND | <0.015 |
| 1110605-09 | 0765 | 10/21/2011 | 17 | 1132.8 | 396 | 443.5 | 21 | 0.048 | ND | <0.056 | ND | <0.056 |
| 1110605-12 | 0768 | 10/21/2011 | 22 | 1132.8 | 390 | 436.8 | 6.6 | 0.015 | ND | <0.057 | ND | <0.057 |
| 1110605-15 | 0771 | 10/24/2011 | 17 | 1132.8 | 1410 | 1579.2 | 67 | 0.043 | 41 | 0.026 | ND | <0.016 |
| 1110605-18 | 0774 | 10/24/2011 | 22 | 1132.8 | 1410 | 1579.2 | 41 | 0.026 | ND | <0.016 | ND | <0.016 |
| 1110711-03 | 0777 | 10/25/2011 | 17 | 1132.8 | 1440 | 1612.8 | 34 | 0.021 | ND | <0.016 | ND | <0.016 |
| 1110711-06 | 0780 | 10/25/2011 | 22 | 1132.8 | 1446 | 1619.5 | 41 | 0.025 | ND | <0.015 | ND | <0.015 |
| 1110711-09 | 0783 | 10/26/2011 | 17 | 1132.8 | 1428 | 1599.4 | 62 | 0.039 | 44 | 0.028 | ND | <0.016 |
| 1110711-12 | 0786 | 10/26/2011 | 22 | 1132.8 | 1428 | 1599.4 | 34 | 0.021 | ND | <0.016 | ND | <0.016 |
| 1111056-03 | 0789 | 10/27/2011 | 17 | 1132.8 | 1440 | 1612.8 | 68 | 0.042 | 59 | 0.036 | ND | <0.016 |
| 1111056-06 | 0792 | 10/27/2011 | 22 | 1132.8 | 1440 | 1612.8 | 60 | 0.037 | 41 | 0.025 | ND | <0.016 |
| 1111056-09 | 0795 | 10/28/2011 | 17 | 1132.8 | 426 | 477.1 | 23 | 0.049 | ND | <0.052 | ND | <0.052 |
| 1111056-12 | 0798 | 10/28/2011 | 22 | 1132.8 | 420 | 470.4 | 19 | 0.040 | ND | <0.053 | ND | <0.053 |
| 1111056-15 | 0801 | 10/31/2011 | 17 | 1132.8 | 1482 | 1659.8 | 59 | 0.035 | 27 | 0.016 | ND | <0.015 |
| 1111056-18 | 0804 | 10/31/2011 | 22 | 1132.8 | 1482 | 1659.8 | 84 | 0.051 | 54 | 0.032 | ND | <0.015 |
| 1111122-03 | 0807 | 11/01/2011 | 17 | 1132.8 | 1380 | 1545.6 | 95 | 0.061 | 74 | 0.048 | ND | <0.016 |
| 1111122-06 | 0810 | 11/01/2011 | 22 | 1132.8 | 1380 | 1545.6 | 69 | 0.045 | 56 | 0.036 | ND | <0.016 |
| 1111122-09 | 0813 | 11/02/2011 | 17 | 1132.8 | 1422 | 1592.6 | 57 | 0.036 | 44 | 0.028 | ND | <0.016 |
| 1111122-12 | 0816 | 11/02/2011 | 22 | 1132.8 | 1422 | 1592.6 | 46 | 0.029 | 31 | 0.019 | ND | <0.016 |
| 1111200-03 | 0819 | 11/03/2011 | 17 | 1138.5 | 3114 | 3496.4 | 80 | 0.023 | 37 | 0.011 | ND | <0.0072 |
| 1111200-06 | 0822 | 11/03/2011 | 22 | 1132.8 | 3096 | 3467.5 | 53 | 0.015 | ND | <0.0072 | ND | <0.0072 |
| 1111290-03 | 0825 | 11/07/2011 | 17 | 1132.8 | 1374 | 1538.9 | 34 | 0.022 | ND | <0.016 | ND | <0.016 |
| 1111290-06 | 0828 | 11/07/2011 | 22 | 1132.8 | 1374 | 1538.9 | 20 | 0.013 | ND | <0.016 | ND | <0.016 |
| 1111290-09 | 0831 | 11/08/2011 | 17 | 1132.8 | 1134 | 1270.1 | 32 | 0.025 | ND | <0.020 | ND | <0.020 |
| 1111290-12 | 0834 | 11/08/2011 | 22 | 1132.8 | 1458 | 1633.0 | 30 | 0.019 | ND | <0.015 | ND | <0.015 |
| 1111290-15 | 0837 | 11/09/2011 | CTO5 10B | 1132.8 | 1350 | 1512.0 | 46 | 0.031 | ND | <0.017 | ND | <0.017 |
| 1111290-18 | 0840 | 11/09/2011 | 22 | 1132.8 | 1482 | 1659.8 | 53 | 0.032 | ND | <0.015 | ND | <0.015 |
| 1111349-03 | 0843 | 11/10/2011 | CTO5 10B | 1132.8 | 1392 | 1549.3 | 52 | 0.033 | 31 | 0.020 | ND | <0.016 |
| 1111349-06 | 0846 | 11/10/2011 | 22 | 1132.8 | 1386 | 1552.3 | 52 | 0.033 | 30 | 0.019 | ND | <0.016 |
| 1111349-09 | 0849 | 11/11/2011 | CTO5 10B | 1132.8 | 450 | 504.0 | 7.2 | 0.014 | ND | <0.050 | ND | <0.050 |
| 1111349-12 | 0852 | 11/11/2011 | 22 | 1132.8 | 474 | 530.9 | 4.8 | 0.0090 | ND | <0.047 | ND | <0.047 |
| 1111463-03 | 0855 | 11/14/2011 | CTO5 10B | 1132.8 | 1422 | 1592.6 | 39 | 0.024 | ND | <0.016 | ND | <0.016 |
| 1111463-06 | 0858 | 11/14/2011 | 22 | 1132.8 | 1434 | 1606.1 | 40 | 0.025 | ND | <0.016 | ND | <0.016 |
| 1111463-09 | 0861 | 11/15/2011 | CTO5 10B | 1132.8 | 1446 | 1619.5 | 44 | 0.027 | ND | <0.015 | ND | <0.015 |
| 1111463-12 | 0864 | 11/15/2011 | 22 | 1132.8 | 1446 | 1619.5 | 36 | 0.022 | ND | <0.015 | ND | <0.015 |
| 1111463-15 | 0867 | 11/16/2011 | CTO5 10B | 1132.8 | 1422 | 1592.6 | 38 | 0.024 | ND | <0.016 | ND | <0.016 |
| 1111463-18 | 0870 | 11/16/2011 | 22 | 1132.8 | 1440 | 1612.8 | 27 | 0.016 | ND | <0.016 | ND | <0.016 |
| 1111569-03 | 0873 | 11/17/2011 | CTO5 10B | 1132.8 | 1386 | 1552.3 | 31 | 0.020 | ND | <0.016 | ND | <0.016 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1111569-06 | 0876 | 11/17/2011 | 22 | 1132.8 | 1380 | 1545.6 | 15 | 0.0098 | ND | <0.016 | ND | <0.016 |
| 1111569-09 | 0879 | 11/21/2011 | CTO5 10B | 1132.8 | 1428 | 1599.4 | 15 | 0.0095 | ND | <0.016 | ND | <0.016 |
| 1111569-12 | 0882 | 11/21/2011 | 22 | 1132.8 | 1398 | 1565.8 | 14 | 0.0087 | ND | <0.016 | ND | <0.016 |
| 1112042-03 | 0885 | 11/28/2011 | CTO5 10B | 1132.8 | 1434 | 1606.1 | 22 | 0.014 | ND | <0.016 | ND | <0.016 |
| 1112042-06 | 0888 | 11/28/2011 | 22 | 1132.8 | 1542 | 1727.0 | 28 | 0.016 | ND | <0.014 | ND | <0.014 |
| 1112042-09 | 0891 | 11/29/2011 | CTO5 10B | 1132.8 | 1416 | 1585.9 | 17 | 0.011 | 27 | 0.017 | ND | <0.016 |
| 1112042-12 | 0894 | 11/29/2011 | 22 | 1132.8 | 1356 | 1518.7 | 16 | 0.010 | ND | <0.016 | ND | <0.016 |
| 1112042-15 | 0897 | 11/30/2011 | CTO5 10B | 1132.8 | 1362 | 1525.4 | 34 | 0.023 | 38 | 0.025 | ND | <0.016 |
| 1112042-18 | 0900 | 11/30/2011 | 22 | 1132.8 | 1428 | 1599.4 | 62 | 0.039 | 49 | 0.031 | ND | <0.016 |
| 1112128-03 | 0903 | 12/01/2011 | CTO5 10B | 1132.8 | 1434 | 1606.1 | 60 | 0.038 | 53 | 0.033 | ND | <0.016 |
| 1112128-06 | 0906 | 12/01/2011 | 22 | 1132.8 | 1344 | 1505.3 | 42 | 0.028 | 40 | 0.027 | ND | <0.017 |
| 1112128-09 | 0909 | 12/02/2011 | CTO5 10B | 1132.8 | 390 | 436.8 | 7.1 | 0.016 | 26 | 0.061 | ND | <0.057 |
| 1112128-12 | 0912 | 12/02/2011 | 22 | 1132.8 | 348 | 389.8 | ND | <0.000026 | ND | <0.00064 | ND | <0.00064 |
| 1112128-15 | 0915 | 12/05/2011 | CTO5 10B | 1132.8 | 1278 | 1431.4 | 58 | 0.041 | 42 | 0.030 | ND | <0.017 |
| 1112128-18 | 0918 | 12/05/2011 | 22 | 1132.8 | 1272 | 1424.6 | 41 | 0.029 | 26 | 0.018 | ND | <0.018 |
| 1112199-03 | 0921 | 12/06/2011 | 17 | 1132.8 | 1344 | 1505.3 | 68 | 0.045 | 43 | 0.029 | ND | <0.017 |
| 1112199-06 | 0924 | 12/06/2011 | 22 | 1132.8 | 1356 | 1518.7 | 48 | 0.031 | ND | <0.016 | ND | <0.016 |
| 1112199-09 | 0927 | 12/07/2011 | 17 | 1132.8 | 1500 | 1680.0 | 74 | 0.044 | 54 | 0.032 | ND | <0.015 |
| 1112199-12 | 0930 | 12/07/2011 | 22 | 1132.8 | 1500 | 1680.0 | 37 | 0.022 | ND | <0.015 | ND | <0.015 |
| 1112269-03 | 0933 | 12/08/2011 | 17 | 1132.8 | 1452 | 1626.2 | 68 | 0.042 | 43 | 0.027 | ND | <0.015 |
| 1112269-06 | 0936 | 12/08/2011 | 22 | 1132.8 | 1452 | 1626.2 | 57 | 0.035 | 33 | 0.020 | ND | <0.015 |
| 1112269-08 | 0939 | 12/09/2011 | 17 | 1132.8 | 360 | 403.2 | 12 | 0.030 | ND | <0.062 | ND | <0.062 |
| 1112269-10 | 0942 | 12/09/2011 | 22 | 1132.8 | 354 | 396.5 | 13 | 0.034 | ND | <0.063 | ND | <0.063 |
| 1112374-03 | 0945 | 12/13/2011 | 17 | 1132.8 | 1452 | 1626.2 | 50 | 0.031 | ND | <0.015 | ND | <0.015 |
| 1112374-06 | 0948 | 12/13/2011 | 22 | 1132.8 | 1452 | 1626.2 | 33 | 0.020 | ND | <0.015 | ND | <0.015 |
| 1112374-09 | 0951 | 12/14/2011 | 17 | 1132.8 | 1446 | 1619.5 | 36 | 0.022 | ND | <0.015 | ND | <0.015 |
| 1112374-12 | 0954 | 12/14/2011 | 22 | 1132.8 | 1440 | 1612.8 | 37 | 0.023 | ND | <0.016 | ND | <0.016 |
| 1112502-03 | 0957 | 12/16/2011 | 17 | 1132.8 | 480 | 537.6 | 14 | 0.025 | ND | <0.046 | ND | <0.046 |
| 1112502-06 | 0960 | 12/16/2011 | 22 | 1189.4 | 474 | 544.2 | 6.7 | 0.012 | ND | <0.046 | ND | <0.046 |
| 1112502-09 | 0963 | 12/19/2011 | 17 | 1161.1 | 1542 | 1748.6 | 56 | 0.032 | 35 | 0.020 | ND | <0.014 |
| 1112502-12 | 0966 | 12/19/2011 | 22 | 1132.8 | 1506 | 1686.7 | 32 | 0.019 | ND | <0.015 | ND | <0.015 |
| 1112574-03 | 0969 | 12/20/2011 | 17 | 1132.8 | 1296 | 1451.5 | 63 | 0.043 | 46 | 0.032 | ND | <0.017 |
| 1112574-06 | 0972 | 12/20/2011 | 22 | 1132.8 | 1326 | 1485.1 | 36 | 0.024 | ND | <0.017 | ND | <0.017 |
| 1112574-09 | 0975 | 12/21/2011 | 17 | 1132.8 | 1434 | 1606.1 | 79 | 0.049 | 74 | 0.046 | ND | <0.016 |
| 1112574-12 | 0978 | 12/21/2011 | 22 | 1132.8 | 1326 | 1485.1 | 28 | 0.019 | ND | <0.017 | ND | <0.017 |
| 1112574-15 | 0981 | 12/22/2011 | 17 | 1132.8 | 1464 | 1639.7 | 38 | 0.023 | 29 | 0.017 | ND | <0.015 |
| 1112574-18 | 0984 | 12/22/2011 | 22 | 1132.8 | 1308 | 1465.0 | 25 | 0.017 | ND | <0.017 | ND | <0.017 |
| 1112574-21 | 0987 | 12/27/2011 | 17 | 1132.8 | 1428 | 1599.4 | 37 | 0.023 | ND | <0.016 | ND | <0.016 |
| 1112574-24 | 0990 | 12/27/2011 | 22 | 1132.8 | 1428 | 1599.4 | 23 | 0.014 | ND | <0.016 | ND | <0.016 |
| 1201077-03 | 0993 | 12/28/2011 | 17 | 1132.8 | 1422 | 1592.6 | 26 | 0.016 | ND | <0.016 | ND | <0.016 |
| 1201077-06 | 0996 | 12/28/2011 | 22 | 1132.8 | 1422 | 1592.6 | 16 | 0.010 | ND | <0.016 | ND | <0.016 |
| 1201077-10 | 1002 | 12/29/2011 | 22 | 1132.8 | 420 | 470.4 | 5.5 | 0.012 | ND | <0.053 | ND | <0.053 |
| 1201077-13 | 1005 | 01/03/2012 | 17 | 1132.8 | 1452 | 1626.2 | 46 | 0.028 | 30 | 0.018 | ND | <0.015 |
| 1201077-16 | 1008 | 01/03/2012 | 22 | 1147.0 | 1458 | 1643.2 | 35 | 0.021 | ND | <0.015 | ND | <0.015 |
| 1201077-19 | 1011 | 01/04/2012 | 17 | 1132.8 | 1434 | 1586.0 | 50 | 0.031 | 34 | 0.021 | ND | <0.016 |
| 1201077-22 | 1014 | 01/04/2012 | 22 | 1147.0 | 1428 | 1609.4 | 37 | 0.023 | ND | <0.016 | ND | <0.016 |
| 1201130-03 | 1017 | 01/05/2012 | 17 | 1132.8 | 558 | 625.0 | 34 | 0.055 | ND | <0.040 | ND | <0.040 |
| 1201130-06 | 1020 | 01/05/2012 | 22 | 1132.8 | 1500 | 1680.0 | 57 | 0.034 | ND | <0.015 | ND | <0.015 |
| 1201204-03 | 1023 | 01/09/2012 | 17 | 1132.8 | 1440 | 1612.8 | 87 | 0.054 | 58 | 0.036 | ND | <0.016 |
| 1201204-06 | 1026 | 01/09/2012 | 22 | 1132.8 | 1446 | 1619.5 | 62 | 0.038 | 32 | 0.020 | ND | <0.015 |
| 1201204-09 | 1029 | 01/10/2012 | 17 | 1132.8 | 1482 | 1659.8 | 32 | 0.019 | ND | <0.015 | ND | <0.015 |
| 1201204-12 | 1032 | 01/10/2012 | 22 | 1132.8 | 1476 | 1653.1 | 65 | 0.039 | 33 | 0.020 | ND | <0.015 |
| 1201204-15 | 1035 | 01/11/2012 | 17 | 1132.8 | 1392 | 1559.0 | 48 | 0.031 | 33 | 0.021 | ND | <0.016 |
| 1201204-18 | 1038 | 01/11/2012 | 22 | 1132.8 | 1398 | 1565.8 | 46 | 0.030 | 32 | 0.021 | ND | <0.016 |
| 1201249-03 | 1041 | 01/12/2012 | 17 | 1132.8 | 1428 | 1599.4 | 38 | 0.024 | 26 | 0.017 | ND | <0.016 |
| 1201249-06 | 1044 | 01/12/2012 | 22 | 1132.8 | 1428 | 1599.4 | 66 | 0.041 | 57 | 0.035 | ND | <0.016 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)**Dates Monitored: 10/6/10 through 11/13/12**Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1201249-09 | 1047 | 01/13/2012 | 17 | 1246.1 | 468 | 563.5 | 16 | 0.029 | 27 | 0.047 | ND | <0.044 |
| 1201249-12 | 1050 | 01/13/2012 | 22 | 1246.1 | 444 | 540.8 | 24 | 0.045 | 38 | 0.070 | ND | <0.046 |
| 1201342-03 | 1053 | 01/16/2012 | 17 | 1132.8 | 1452 | 1626.2 | 32 | 0.020 | 27 | 0.017 | ND | <0.015 |
| 1201342-06 | 1056 | 01/16/2012 | 22 | 1132.8 | 1452 | 1626.2 | 30 | 0.018 | ND | <0.015 | ND | <0.015 |
| 1201342-09 | 1059 | 01/17/2012 | 17 | 1132.8 | 1356 | 1518.7 | 29 | 0.019 | 31 | 0.020 | ND | <0.016 |
| 1201342-12 | 1062 | 01/17/2012 | 22 | 1132.8 | 1356 | 1518.7 | 20 | 0.013 | ND | <0.016 | ND | <0.016 |
| 1201342-15 | 1065 | 01/18/2012 | 17 | 1132.8 | 1584 | 1774.1 | 29 | 0.017 | 26 | 0.015 | ND | <0.014 |
| 1201342-18 | 1068 | 01/18/2012 | 22 | 1132.8 | 1584 | 1763.0 | 25 | 0.014 | ND | <0.014 | ND | <0.014 |
| 1201497-03 | 1071 | 01/19/2012 | 17 | 1132.8 | 1344 | 1505.3 | 19 | 0.013 | ND | <0.017 | ND | <0.017 |
| 1201497-06 | 1074 | 01/19/2012 | 22 | 1132.8 | 1314 | 1462.5 | 22 | 0.015 | ND | <0.017 | ND | <0.017 |
| 1201497-09 | 1077 | 01/24/2012 | 17 | 1132.8 | 420 | 470.4 | 23 | 0.051 | ND | <0.055 | ND | <0.055 |
| 1201497-12 | 1080 | 01/24/2012 | 22 | 1132.8 | 414 | 463.7 | 7.2 | 0.016 | ND | <0.054 | ND | <0.054 |
| 1201581-03 | 1089 | 01/26/2012 | 17 | 1132.8 | 1368 | 1532.2 | 56 | 0.037 | 42 | 0.027 | ND | <0.016 |
| 1201581-06 | 1092 | 01/26/2012 | 22 | 1132.8 | 1368 | 1532.2 | 12 | 0.0082 | ND | <0.016 | ND | <0.016 |
| 1201581-09 | 1095 | 01/27/2012 | 17 | 1132.8 | 426 | 477.1 | 5.8 | 0.012 | ND | <0.052 | ND | <0.052 |
| 1201581-12 | 1098 | 01/27/2012 | 22 | 1132.8 | 456 | 510.7 | 1.0 | 0.0020 | ND | <0.049 | ND | <0.049 |
| 1201581-15 | 1101 | 01/28/2012 | 17 | 1132.8 | 420 | 464.5 | 4.7 | 0.010 | ND | <0.054 | ND | <0.054 |
| 1201581-18 | 1104 | 01/28/2012 | 22 | 1132.8 | 390 | 436.8 | 4.3 | 0.0098 | ND | <0.057 | ND | <0.057 |
| 1202082-03 | 1107 | 01/30/2012 | 17 | 1132.8 | 1446 | 1619.5 | 51 | 0.031 | 48 | 0.030 | ND | <0.015 |
| 1202082-06 | 1110 | 01/30/2012 | 22 | 1132.8 | 1446 | 1619.5 | 20 | 0.012 | ND | <0.015 | ND | <0.015 |
| 1202082-09 | 1113 | 01/31/2012 | 17 | 1132.8 | 1374 | 1538.9 | 32 | 0.020 | 33 | 0.022 | ND | <0.016 |
| 1202082-12 | 1116 | 01/31/2012 | 22 | 1132.8 | 1374 | 1538.9 | 13 | 0.0083 | ND | <0.016 | ND | <0.016 |
| 1202124-03 | 1119 | 02/02/2012 | 17 | 1161.1 | 1422 | 1612.5 | 34 | 0.021 | 31 | 0.019 | ND | <0.016 |
| 1202124-06 | 1122 | 02/02/2012 | 22 | 1132.8 | 1422 | 1592.6 | 26 | 0.017 | 25 | 0.016 | ND | <0.016 |
| 1202124-09 | 1125 | 02/03/2012 | 17 | 1147.0 | 432 | 486.9 | 12 | 0.025 | 25 | 0.052 | ND | <0.051 |
| 1202124-12 | 1128 | 02/03/2012 | 22 | 1132.8 | 408 | 451.2 | 12 | 0.025 | 25 | 0.055 | ND | <0.055 |
| 1202220-03 | 1131 | 02/08/2012 | 17 | 1189.4 | 1428 | 1639.3 | 32 | 0.020 | ND | <0.016 | ND | <0.016 |
| 1202220-06 | 1134 | 02/08/2012 | 22 | 1132.8 | 1428 | 1599.4 | 30 | 0.019 | 30 | 0.018 | ND | <0.015 |
| 1202279-03 | 1137 | 02/09/2012 | 17 | 1124.3 | 1416 | 1580.0 | 46 | 0.029 | ND | <0.016 | ND | <0.016 |
| 1202279-06 | 1140 | 02/09/2012 | 22 | 1132.8 | 1416 | 1566.1 | 37 | 0.023 | ND | <0.016 | ND | <0.016 |
| 1202279-09 | 1143 | 02/10/2012 | 17 | 1132.8 | 402 | 450.2 | 8.7 | 0.019 | ND | <0.056 | ND | <0.056 |
| 1202279-12 | 1146 | 02/10/2012 | 22 | 1132.8 | 378 | 423.4 | 5.4 | 0.013 | ND | <0.059 | ND | <0.059 |
| 1202389-03 | 1149 | 02/15/2012 | 17 | 1132.8 | 1482 | 1659.8 | 31 | 0.018 | 36 | 0.022 | ND | <0.015 |
| 1202389-06 | 1152 | 02/15/2012 | 22 | 1147.0 | 1488 | 1677.0 | 22 | 0.013 | 28 | 0.017 | ND | <0.015 |
| 1202450-03 | 1155 | 02/16/2012 | 17 | 1132.8 | 1476 | 1653.1 | 47 | 0.029 | 38 | 0.023 | ND | <0.015 |
| 1202450-06 | 1158 | 02/16/2012 | 22 | 1132.8 | 1446 | 1619.5 | 31 | 0.019 | 28 | 0.017 | ND | <0.015 |
| 1202631-03 | 1161 | 02/23/2012 | 17 | 1132.8 | 1362 | 1525.4 | 83 | 0.055 | 72 | 0.048 | ND | <0.016 |
| 1202631-06 | 1164 | 02/23/2012 | 22 | 1132.8 | 1410 | 1539.7 | 46 | 0.030 | 37 | 0.024 | ND | <0.016 |
| 1202631-08 | 1167 | 02/24/2012 | 17 | 1132.8 | 372 | 416.6 | 24 | 0.058 | 38 | 0.092 | ND | <0.060 |
| 1202631-10 | 1170 | 02/24/2012 | 22 | 1132.8 | 366 | 409.9 | 7.1 | 0.017 | ND | <0.061 | ND | <0.061 |
| 1203209-02 | 1173 | 03/06/2012 | 17 | 1161.1 | 1476 | 1673.8 | 110 | 0.067 | 77 | 0.046 | ND | <0.015 |
| 1203209-04 | 1176 | 03/06/2012 | 22 | 1161.1 | 1470 | 1667.0 | 48 | 0.029 | 26 | 0.016 | ND | <0.015 |
| 1203404-03 | 1179 | 03/12/2012 | 17 | 1132.8 | 1422 | 1592.6 | 64 | 0.040 | 36 | 0.023 | ND | <0.016 |
| 1203404-06 | 1182 | 03/12/2012 | 22 | 1161.1 | 1422 | 1612.5 | 34 | 0.021 | ND | <0.016 | ND | <0.016 |
| 1203554-03 | 1185 | 03/20/2012 | 17 | 1132.8 | 1398 | 1565.8 | 44 | 0.028 | 30 | 0.019 | ND | <0.016 |
| 1203554-06 | 1188 | 03/20/2012 | 22 | 1132.8 | 1404 | 1572.5 | 26 | 0.017 | ND | <0.016 | ND | <0.016 |
| 1205678-03 | 1200 | 05/21/2012 | 22 | 1132.8 | 1392 | 1559.0 | 16 | 0.010 | ND | <0.016 | ND | <0.016 |
| 1205678-06 | 1203 | 05/21/2012 | 17 | 934.6 | 690 | 637.6 | 50 | 0.079 | 41 | 0.065 | ND | <0.039 |
| 1205678-09 | 1206 | 05/22/2012 | 22 | 1132.8 | 1386 | 1552.3 | 59 | 0.038 | 31 | 0.020 | ND | <0.016 |
| 1205678-12 | 1209 | 05/22/2012 | 17 | 934.6 | 1080 | 997.9 | 86 | 0.086 | 38 | 0.038 | ND | <0.025 |
| 1205678-15 | 1212 | 05/23/2012 | 22 | 1132.8 | 1452 | 1626.2 | 86 | 0.053 | 30 | 0.018 | ND | <0.015 |
| 1205678-17 | 1215 | 05/23/2012 | 17 | 934.6 | 1452 | 1341.6 | 150 | 0.11 | 68 | 0.051 | 38 | 0.028 |
| 1205678-20 | 1218 | 05/24/2012 | 22 | 1132.8 | 1386 | 1552.3 | 71 | 0.046 | 30 | 0.020 | ND | <0.016 |
| 1205678-22 | 1221 | 05/24/2012 | 17 | 934.6 | 1392 | 1286.2 | 150 | 0.12 | 74 | 0.057 | 39 | 0.031 |
| 1205741-02 | 1233 | 05/25/2012 | 17 | 934.6 | 396 | 365.9 | 34 | 0.093 | ND | <0.068 | 25 | 0.069 |
| 1205741-05 | 1236 | 05/25/2012 | 22 | 1132.8 | 384 | 430.1 | 12 | 0.027 | ND | <0.058 | ND | <0.058 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1206030-03 | 1230 | 05/29/2012 | 22 | 1132.8 | 1422 | 1592.6 | 53 | 0.033 | ND | <0.016 | ND | <0.016 |
| 1206030-06 | 1239 | 05/29/2012 | 17 | 934.6 | 1422 | 1313.9 | 55 | 0.035 | ND | <0.016 | ND | <0.016 |
| 1206030-08 | 1236 | 05/30/2012 | 22 | 1132.8 | 1422 | 1592.6 | 94 | 0.072 | 46 | 0.035 | ND | <0.019 |
| 1206030-10 | 1245 | 05/30/2012 | 17 | 934.6 | 1440 | 1330.6 | 86 | 0.065 | 34 | 0.026 | ND | <0.019 |
| 1206118-03 | 1242 | 05/31/2012 | 22 | 1132.8 | 1452 | 1626.2 | 54 | 0.034 | ND | <0.016 | ND | <0.015 |
| 1206118-06 | 1248 | 06/01/2012 | 17 | 1132.8 | 360 | 403.2 | 14 | 0.035 | ND | <0.016 | ND | <0.062 |
| 1206118-09 | 1251 | 05/31/2012 | 22 | 934.6 | 1452 | 1341.6 | 99 | 0.074 | 46 | 0.035 | ND | <0.019 |
| 1206118-12 | 1257 | 06/01/2012 | 17 | 934.6 | 378 | 349.3 | 28 | 0.080 | 34 | 0.026 | ND | <0.072 |
| 1206224-03 | 1260 | 06/05/2012 | 22 | 991.2 | 1512 | 1418.3 | 42 | 0.030 | ND | <0.018 | ND | <0.018 |
| 1206224-06 | 1266 | 06/06/2012 | 17 | 991.2 | 1344 | 1317.1 | 39 | 0.029 | ND | <0.019 | ND | <0.019 |
| 1206224-09 | 1269 | 06/05/2012 | 22 | 934.6 | 1494 | 1317.7 | 78 | 0.059 | 31 | 0.024 | ND | <0.019 |
| 1206224-12 | 1275 | 06/06/2012 | 17 | 877.9 | 1350 | 1171.8 | 80 | 0.068 | 30 | 0.026 | ND | <0.021 |
| 1206301-03 | 1272 | 06/07/2012 | 22 | 991.2 | 1446 | 1417.1 | 45 | 0.032 | ND | <0.018 | ND | <0.018 |
| 1206301-09 | 1281 | 06/07/2012 | 17 | 877.9 | 1440 | 1249.9 | 130 | 0.10 | 69 | 0.055 | ND | <0.020 |
| 1206301-06 | 1278 | 06/08/2012 | 22 | 991.2 | 384 | 376.3 | 19 | 0.050 | ND | <0.066 | ND | <0.066 |
| 1206301-12 | 1287 | 06/08/2012 | 17 | 934.6 | 396 | 365.9 | 52 | 0.14 | 40 | 0.11 | ND | <0.068 |
| 1206447-03 | 1284 | 06/11/2012 | 22 | 991.2 | 1446 | 1417.1 | 87 | 0.062 | 26 | 0.018 | ND | <0.018 |
| 1206447-06 | 1293 | 06/11/2012 | 17 | 934.6 | 1440 | 1330.6 | 120 | 0.091 | 50 | 0.038 | ND | <0.019 |
| 1206447-09 | 1290 | 06/12/2012 | 22 | 991.2 | 1428 | 1359.5 | 79 | 0.058 | 44 | 0.032 | ND | <0.018 |
| 1206447-12 | 1299 | 06/12/2012 | 17 | 934.6 | 1428 | 1259.5 | 130 | 0.11 | 70 | 0.056 | ND | <0.020 |
| 1206447-15 | 1296 | 06/13/2012 | 22 | 934.6 | 1440 | 1330.6 | 68 | 0.051 | ND | <0.019 | ND | <0.019 |
| 1206447-18 | 1305 | 06/13/2012 | 17 | 849.6 | 1440 | 1209.6 | 100 | 0.083 | 32 | 0.026 | ND | <0.021 |
| 1206549-03 | 1302 | 06/14/2012 | 22 | 934.6 | 1476 | 1363.8 | 84 | 0.061 | ND | <0.018 | ND | <0.016 |
| 1206549-06 | 1308 | 06/15/2012 | 17 | 934.6 | 348 | 321.6 | 19 | 0.060 | ND | <0.078 | ND | <0.016 |
| 1206549-09 | 1311 | 06/14/2012 | 22 | 849.6 | 1368 | 1149.1 | 120 | 0.10 | 36 | 0.031 | ND | <0.019 |
| 1206549-12 | 1317 | 06/15/2012 | 17 | 849.6 | 342.8 | 288.0 | 33 | 0.12 | ND | <0.087 | ND | <0.019 |
| 1206638-03 | 1323 | 06/18/2012 | 17 | 849.6 | 1428 | 1199.5 | 81 | 0.067 | 34 | 0.029 | ND | <0.021 |
| 1206638-06 | 1314 | 06/18/2012 | 22 | 991.2 | 1428 | 1359.5 | 53 | 0.039 | ND | <0.018 | ND | <0.018 |
| 1206638-09 | 1329 | 06/19/2012 | 17 | 849.6 | 1458 | 1224.7 | 94 | 0.077 | 34 | 0.028 | ND | <0.020 |
| 1206638-12 | 1320 | 06/19/2012 | 22 | 934.6 | 1422 | 1313.9 | 64 | 0.049 | ND | <0.019 | ND | <0.019 |
| 1206638-15 | 1335 | 06/20/2012 | 17 | 849.6 | 1404 | 1179.4 | 85 | 0.072 | 31 | 0.027 | ND | <0.021 |
| 1206638-18 | 1326 | 06/20/2012 | 22 | 934.6 | 1422 | 1313.9 | 63 | 0.048 | ND | <0.019 | ND | <0.019 |
| 1206715-03 | 1332 | 06/21/2012 | 22 | 934.6 | 1446 | 1336.1 | 25 | 0.019 | ND | <0.019 | ND | <0.019 |
| 1206715-06 | 1338 | 06/22/2012 | 22 | 934.6 | 402 | 371.4 | 4.5 | 0.012 | ND | <0.067 | ND | <0.067 |
| 1206715-09 | 1341 | 06/21/2012 | 17 | 849.6 | 1440 | 1209.6 | 61 | 0.050 | 27 | 0.022 | ND | <0.021 |
| 1206715-12 | 1347 | 06/22/2012 | 17 | 849.6 | 420 | 352.8 | 20 | 0.056 | ND | <0.071 | ND | <0.071 |
| 1206774-03 | 1353 | 06/25/2012 | 17 | 849.6 | 1440 | 1209.6 | 58 | 0.048 | 36 | 0.029 | ND | <0.021 |
| 1206774-06 | 1344 | 06/25/2012 | 22 | 934.6 | 1434 | 1325.0 | 17 | 0.013 | ND | <0.019 | ND | <0.019 |
| 1206774-09 | 1359 | 06/26/2012 | 17 | 849.6 | 1536 | 1290.2 | 68 | 0.053 | 31 | 0.024 | ND | <0.019 |
| 1206774-12 | 1350 | 06/26/2012 | 22 | 934.6 | 1512 | 1397.1 | 58 | 0.041 | 31 | 0.022 | ND | <0.018 |
| 1206774-15 | 1365 | 06/27/2012 | 17 | 849.6 | 1428 | 1199.5 | 86 | 0.071 | 44 | 0.037 | ND | <0.021 |
| 1206774-18 | 1356 | 06/27/2012 | 22 | 934.6 | 1428 | 1319.5 | 36 | 0.027 | ND | <0.019 | ND | <0.019 |
| 1207043-03 | 1362 | 06/28/2012 | 22 | 934.6 | 912 | 842.7 | 34 | 0.040 | ND | <0.030 | ND | <0.030 |
| 1207043-06 | 1371 | 06/28/2012 | 17 | 849.6 | 1422 | 1194.5 | 87 | 0.073 | 46 | 0.038 | ND | <0.021 |
| 1207043-09 | 1368 | 06/29/2012 | 22 | 934.6 | 300 | 277.2 | 6.6 | 0.024 | ND | <0.090 | ND | <0.090 |
| 1207043-12 | 1377 | 06/29/2012 | 17 | 849.6 | 300 | 252.0 | 14 | 0.56 | ND | <0.099 | ND | <0.099 |
| 1207099-03 | 1383 | 07/02/2012 | 17 | 934.6 | 1440 | 1330.6 | 97 | 0.073 | 43 | 0.000033 | ND | <0.000019 |
| 1207099-06 | 1380 | 07/02/2012 | 22 | 991.2 | 1416 | 1387.7 | 54 | 0.039 | ND | <0.000018 | ND | <0.000018 |
| 1207261-03 | 1389 | 07/09/2012 | 17 | 1132.8 | 1548 | 1625.4 | 79 | 0.049 | 29 | 0.000018 | ND | <0.000015 |
| 1207261-06 | 1392 | 07/10/2012 | 17 | 991.2 | 1392 | 1364.2 | 93 | 0.068 | 48 | 0.000035 | ND | <0.000018 |
| 1207261-09 | 1386 | 07/09/2012 | 22 | 1132.8 | 1548 | 1603.7 | 35 | 0.026 | ND | <0.000019 | ND | <0.000019 |
| 1207261-12 | 1395 | 07/10/2012 | 22 | 962.9 | 1386 | 1319.5 | 39 | 0.029 | ND | <0.000019 | ND | <0.000019 |
| 1207381-03 | 1398 | 07/11/2012 | 17 | 1019.5 | 1440 | 1451.5 | 75 | 0.052 | 36 | 0.000025 | 39 | 0.000027 |
| 1207381-06 | 1404 | 07/12/2012 | 17 | 1019.5 | 1452 | 1463.6 | 140 | 0.095 | 55 | 0.000038 | 30 | 0.000020 |
| 1207381-09 | 1401 | 07/11/2012 | 22 | 962.9 | 1410 | 1342.3 | 39 | 0.029 | ND | <0.000019 | ND | <0.000019 |
| 1207381-12 | 1407 | 07/12/2012 | 22 | 962.9 | 1446 | 1396.8 | 57 | 0.041 | ND | <0.000018 | ND | <0.000018 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1207381-15 | 1410 | 07/13/2012 | 17 | 1019.5 | 324 | 322.1 | 30 | 0.094 | ND | <0.000078 | ND | <0.000078 |
| 1207381-18 | 1413 | 07/13/2012 | 22 | 991.2 | 336 | 329.3 | 21 | 0.064 | ND | <0.000076 | ND | <0.000076 |
| 1207500-03 | 1416 | 07/16/2012 | 17 | 1019.5 | 1404 | 1415.2 | 52 | 0.036 | 26 | 0.000018 | ND | <0.000017 |
| 1207500-06 | 1419 | 07/16/2012 | 22 | 991.2 | 1410 | 1381.8 | 20 | 0.014 | ND | <0.000018 | ND | <0.000018 |
| 1207500-09 | 1422 | 07/17/2012 | 17 | 1132.8 | 1212 | 1357.4 | 42 | 0.031 | ND | <0.000018 | ND | <0.000018 |
| 1207500-12 | 1425 | 07/17/2012 | 22 | 991.2 | 1176 | 1152.5 | 11 | 0.0093 | ND | <0.000022 | ND | <0.000022 |
| 1207500-14 | 1428 | 07/18/2012 | 17 | 1132.8 | 1476 | 1549.8 | 54 | 0.035 | 29 | 0.000019 | ND | <0.000016 |
| 1207500-17 | 1431 | 07/18/2012 | 22 | 991.2 | 1470 | 1440.6 | 8.8 | 0.027 | ND | <0.000076 | ND | <0.000076 |
| 1207543-02 | 1434 | 07/19/2012 | 17 | 1132.8 | 1338 | 1498.6 | 77 | 0.051 | 37 | 0.000025 | 46 | 0.000031 |
| 1207543-05 | 1437 | 07/19/2012 | 22 | 991.2 | 1332 | 1305.4 | 26 | 0.020 | ND | <0.000019 | ND | <0.000019 |
| 1207543-08 | 1440 | 07/20/2012 | 17 | 1132.8 | 372 | 390.6 | 23 | 0.059 | ND | <0.000064 | ND | <0.000064 |
| 1207543-11 | 1443 | 07/20/2012 | 22 | 991.2 | 390 | 382.2 | 14 | 0.037 | ND | <0.000065 | ND | <0.000065 |
| 1207632-03 | 1446 | 07/23/2012 | 17 | 991.2 | 1368 | 1340.6 | 76 | 0.056 | 27 | 0.000020 | ND | <0.000019 |
| 1207632-06 | 1449 | 07/23/2012 | 22 | 991.2 | 1350 | 1323.0 | 48 | 0.036 | ND | <0.000019 | ND | <0.000019 |
| 1207632-09 | 1452 | 07/24/2012 | 17 | 1132.8 | 1410 | 1579.2 | 120 | 0.073 | 69 | 0.000044 | ND | <0.000016 |
| 1207632-12 | 1455 | 07/24/2012 | 22 | 991.2 | 1440 | 1411.2 | 37 | 0.026 | ND | <0.000018 | ND | <0.000018 |
| 1207632-15 | 1458 | 07/25/2012 | 17 | 1132.8 | 1434 | 1606.1 | 86 | 0.054 | 49 | 0.000031 | ND | <0.000016 |
| 1207632-18 | 1461 | 07/25/2012 | 22 | 991.2 | 1428 | 1399.4 | 24 | 0.017 | ND | <0.000018 | ND | <0.000018 |
| 1207722-02 | 1464 | 07/26/2012 | 17 | 991.2 | 1428 | 1419.4 | 70 | 0.049 | 36 | 0.000025 | ND | <0.000018 |
| 1207722-05 | 1467 | 07/26/2012 | 22 | 991.2 | 1422 | 1393.6 | 38 | 0.027 | 32 | 0.000023 | ND | <0.000018 |
| 1207722-07 | 1470 | 07/27/2012 | 17 | 1132.8 | 438 | 490.6 | 35 | 0.0071 | 25 | 0.000052 | ND | <0.000051 |
| 1207722-10 | 1473 | 07/27/2012 | 22 | 991.2 | 444 | 435.1 | 8.1 | 0.019 | ND | <0.000057 | ND | <0.000057 |
| 1208110-02 | 1476 | 07/30/2012 | 17 | 1132.8 | 1416 | 1546.3 | 110 | 0.074 | 58 | 0.000037 | 40 | 0.000026 |
| 1208110-05 | 1479 | 07/30/2012 | 22 | 1132.8 | 1416 | 1486.8 | 50 | 0.034 | ND | <0.000017 | ND | <0.000017 |
| 1208110-07 | 1482 | 07/31/2012 | 17 | 1132.8 | 1398 | 1487.5 | 130 | 0.085 | 60 | 0.000040 | 29 | 0.000019 |
| 1208110-10 | 1485 | 07/31/2012 | 22 | 962.9 | 1320 | 1256.6 | 53 | 0.042 | 28 | 0.000022 | ND | <0.000020 |
| 1208110-12 | 1488 | 08/01/2012 | 17 | 1132.8 | 1440 | 1612.8 | 100 | 0.063 | 57 | 0.000036 | 33 | 0.000020 |
| 1208110-15 | 1491 | 08/01/2012 | 22 | 991.2 | 1434 | 1405.3 | 55 | 0.039 | 35 | 0.000025 | ND | <0.000018 |
| 1208144-02 | 1494 | 08/02/2012 | 17 | 1132.8 | 1440 | 1612.8 | 130 | 0.081 | 75 | 0.000046 | 49 | 0.000030 |
| 1208144-05 | 1497 | 08/02/2012 | 22 | 991.2 | 1440 | 1411.2 | 42 | 0.030 | ND | <0.000018 | ND | <0.000018 |
| 1208144-07 | 1500 | 08/03/2012 | 17 | 1132.8 | 414 | 434.7 | 27 | 0.063 | ND | <0.000058 | ND | <0.000058 |
| 1208144-10 | 1503 | 08/03/2012 | 22 | 991.2 | 420 | 411.6 | 19 | 0.046 | ND | <0.000061 | ND | <0.000061 |
| 1208252-02 | 1506 | 08/06/2012 | 17 | 1132.8 | 1422 | 1592.6 | 96 | 0.061 | 54 | 0.000034 | 29 | 0.000018 |
| 1208252-05 | 1509 | 08/06/2012 | 22 | 991.2 | 1392 | 1364.2 | 38 | 0.028 | 30 | 0.000022 | ND | <0.000018 |
| 1208252-07 | 1512 | 08/07/2012 | 17 | 1132.8 | 1386 | 1552.3 | 120 | 0.078 | 73 | 0.000047 | 34 | 0.000022 |
| 1208252-10 | 1515 | 08/07/2012 | 22 | 991.2 | 1410 | 1381.8 | 48 | 0.035 | 32 | 0.000023 | ND | <0.000018 |
| 1208252-12 | 1518 | 08/08/2012 | 17 | 1132.8 | 1488 | 1666.6 | 110 | 0.068 | 55 | 0.000033 | 47 | 0.000028 |
| 1208252-15 | 1521 | 08/08/2012 | 22 | 991.2 | 1488 | 1458.2 | 48 | 0.033 | ND | <0.000017 | ND | <0.000017 |
| 1208317-02 | 1524 | 08/09/2012 | 17 | 1132.8 | 1530 | 1713.6 | 130 | 0.074 | 67 | 0.000039 | 33 | 0.000019 |
| 1208317-05 | 1527 | 08/09/2012 | 22 | 991.2 | 1524 | 1493.5 | 57 | 0.038 | 27 | 0.000018 | ND | <0.000017 |
| 1208317-07 | 1530 | 08/10/2012 | 17 | 1132.8 | 1314 | 1471.7 | 100 | 0.071 | 52 | 0.000036 | 33 | 0.000023 |
| 1208317-10 | 1533 | 08/10/2012 | 22 | 1062.0 | 1272 | 1371.2 | 36 | 0.026 | ND | <0.000018 | ND | <0.000018 |
| 1208400-04 | 1542 | 08/14/2012 | 17 | 991.2 | 1080 | 1058.4 | 79 | 0.075 | 38 | 0.000036 | ND | <0.000024 |
| 1208400-07 | 1545 | 08/14/2012 | 22 | 991.2 | 1074 | 1052.5 | 31 | 0.029 | ND | <0.000024 | ND | <0.000024 |
| 1208400-09 | 1548 | 08/15/2012 | 17 | 1132.8 | 1434 | 1606.1 | 92 | 0.057 | 41 | 0.000025 | ND | <0.000016 |
| 1208400-12 | 1551 | 08/15/2012 | 22 | 991.2 | 1434 | 1385.2 | 50 | 0.036 | 30 | 0.000022 | ND | <0.000018 |
| 1208477-02 | 1554 | 08/16/2012 | 17 | 1132.8 | 1440 | 1612.8 | 100 | 0.062 | 55 | 0.000034 | ND | <0.000016 |
| 1208477-05 | 1557 | 08/16/2012 | 22 | 962.9 | 1434 | 1304.9 | 24 | 0.017 | ND | <0.000018 | ND | <0.000018 |
| 1208477-07 | 1560 | 08/17/2012 | 17 | 1132.8 | 420 | 446.9 | 29 | 0.066 | ND | <0.000056 | ND | <0.000056 |
| 1208477-10 | 1563 | 08/17/2012 | 22 | 991.2 | 402 | 374.3 | 20 | 0.053 | ND | <0.000067 | ND | <0.000067 |
| 1208565-04 | 1569 | 08/20/2012 | 22 | 1132.8 | 1884 | 1978.2 | 35 | 0.018 | ND | <0.000013 | ND | <0.000013 |
| 1208565-06 | 1572 | 08/21/2012 | 17 | 1132.8 | 1440 | 1512.0 | 82 | 0.054 | 35 | 0.000023 | ND | <0.000017 |
| 1208565-09 | 1575 | 08/21/2012 | 22 | 991.2 | 1422 | 1333.8 | 45 | 0.034 | 28 | 0.000021 | ND | <0.000019 |
| 1208565-11 | 1578 | 08/22/2012 | 17 | 1019.5 | 1446 | 1457.6 | 59 | 0.040 | ND | <0.000017 | ND | <0.000017 |
| 1208565-14 | 1581 | 08/22/2012 | 22 | 906.2 | 1446 | 1295.6 | 29 | 0.022 | ND | <0.000019 | ND | <0.000019 |
| 1208608-02 | 1584 | 08/23/2012 | 17 | 1047.8 | 1440 | 1471.7 | 79 | 0.054 | 45 | 0.000031 | ND | <0.000017 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)**Dates Monitored: 10/6/10 through 11/13/12**Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1208608-05 | 1587 | 08/23/2012 | 22 | 906.2 | 1440 | 1290.2 | 29 | 0.022 | ND | <0.000019 | ND | <0.000019 |
| 1208608-07 | 1590 | 08/24/2012 | 17 | 1019.5 | 336 | 338.7 | 43 | 0.13 | 33 | 0.000097 | ND | <0.000074 |
| 1208608-10 | 1593 | 08/24/2012 | 22 | 1019.5 | 330 | 332.6 | 15 | 0.046 | ND | <0.000075 | ND | <0.000075 |
| 1208710-02 | 1596 | 08/27/2012 | 17 | 1104.5 | 1446 | 1498.1 | 97 | 0.065 | 49 | 0.000033 | ND | <0.000017 |
| 1208710-05 | 1599 | 08/27/2012 | 22 | 991.2 | 1434 | 1304.9 | 56 | 0.043 | 26 | 0.000020 | ND | <0.000019 |
| 1208710-07 | 1602 | 08/28/2012 | 17 | 991.2 | 1428 | 1399.4 | 120 | 0.087 | 63 | 0.000045 | 26 | 0.000019 |
| 1208710-10 | 1605 | 08/28/2012 | 22 | 849.6 | 1434 | 1204.6 | 60 | 0.049 | 26 | 0.000022 | ND | <0.000021 |
| 1208710-12 | 1608 | 08/29/2012 | 17 | 1019.5 | 1386 | 1397.1 | 110 | 0.079 | 55 | 0.000039 | ND | <0.000018 |
| 1208710-15 | 1611 | 08/29/2012 | 22 | 849.6 | 1338 | 1123.9 | 64 | 0.057 | ND | <0.000022 | ND | <0.000022 |
| 1209108-02 | 1614 | 08/30/2012 | 17 | 1132.8 | 1380 | 1545.6 | 140 | 0.094 | 80 | 0.000052 | 32 | 0.000021 |
| 1209108-05 | 1617 | 08/30/2012 | 22 | 991.2 | 1392 | 1364.2 | 72 | 0.053 | 42 | 0.000031 | ND | <0.000018 |
| 1209108-07 | 1620 | 08/31/2012 | 17 | 1132.8 | 174 | 194.9 | 8.5 | 0.044 | ND | <0.00013 | ND | <0.00013 |
| 1209108-10 | 1623 | 08/31/2012 | 22 | 991.2 | 156 | 152.9 | 8.5 | 0.056 | ND | <0.00016 | ND | <0.00016 |
| 1209119-02 | 1626 | 09/04/2012 | 17 | 991.2 | 1524 | 1472.2 | 32 | 0.022 | ND | <0.000017 | ND | <0.000017 |
| 1209119-05 | 1629 | 09/04/2012 | 22 | 1132.8 | 1554 | 1501.2 | 34 | 0.022 | ND | <0.000017 | ND | <0.000017 |
| 1209119-07 | 1632 | 09/05/2012 | 17 | 906.2 | 1440 | 1330.6 | 62 | 0.047 | 27 | 0.000020 | ND | <0.000019 |
| 1209119-10 | 1635 | 09/05/2012 | 22 | 736.3 | 1410 | 1026.5 | 30 | 0.029 | ND | <0.000024 | ND | <0.000024 |
| 1209170-02 | 1638 | 09/06/2012 | 17 | 962.9 | 1386 | 1319.5 | 96 | 0.073 | 55 | 0.000042 | ND | <0.000019 |
| 1209170-05 | 1641 | 09/06/2012 | 22 | 736.3 | 1410 | 1026.5 | 41 | 0.040 | ND | <0.000024 | ND | <0.000024 |
| 1209170-07 | 1644 | 09/07/2012 | 17 | 906.2 | 384 | 338.7 | 26 | 0.078 | ND | <0.000074 | ND | <0.000074 |
| 1209170-10 | 1647 | 09/07/2012 | 22 | 736.3 | 372 | 270.8 | 14 | 0.052 | ND | <0.000092 | ND | <0.000092 |
| 1209283-02 | 1650 | 09/10/2012 | 17 | 1132.8 | 1422 | 1493.1 | 74 | 0.049 | 31 | 0.000021 | ND | <0.000017 |
| 1209283-05 | 1653 | 09/10/2012 | 22 | 962.9 | 1422 | 1274.1 | 50 | 0.039 | ND | <0.000020 | ND | <0.000020 |
| 1209283-07 | 1656 | 09/11/2012 | 17 | 991.2 | 1392 | 1364.2 | 84 | 0.062 | 45 | 0.000033 | ND | <0.000018 |
| 1209283-10 | 1659 | 09/11/2012 | 22 | 849.6 | 1386 | 1164.2 | 63 | 0.054 | 29 | 0.000025 | ND | <0.000021 |
| 1209283-12 | 1662 | 09/12/2012 | 17 | 991.2 | 1464 | 1434.7 | 65 | 0.046 | 42 | 0.000029 | ND | <0.000017 |
| 1209283-15 | 1665 | 09/12/2012 | 22 | 849.6 | 1428 | 1199.5 | 38 | 0.032 | ND | <0.000021 | ND | <0.000021 |
| 1209341-02 | 1668 | 09/13/2012 | 17 | 991.2 | 1404 | 1375.9 | 91 | 0.066 | 50 | 0.000036 | ND | <0.000018 |
| 1209341-05 | 1671 | 09/13/2012 | 22 | 849.6 | 1416 | 1189.4 | 38 | 0.032 | ND | <0.000021 | ND | <0.000021 |
| 1209341-07 | 1674 | 09/14/2012 | 17 | 991.2 | 420 | 394.0 | 35 | 0.088 | ND | <0.000063 | ND | <0.000063 |
| 1209341-10 | 1677 | 09/14/2012 | 22 | 849.6 | 408 | 319.9 | 12 | 0.039 | ND | <0.000078 | ND | <0.000078 |
| 1209432-02 | 1680 | 09/17/2012 | 17 | 1132.8 | 1410 | 1500.2 | 58 | 0.039 | 25 | 0.000017 | ND | <0.000017 |
| 1209432-05 | 1683 | 09/17/2012 | 22 | 991.2 | 1404 | 1375.9 | 22 | 0.016 | ND | <0.000018 | ND | <0.000018 |
| 1209432-07 | 1686 | 09/18/2012 | 17 | 1132.8 | 1446 | 1619.5 | 58 | 0.036 | 31 | 0.000019 | ND | <0.000015 |
| 1209432-10 | 1689 | 09/18/2012 | 22 | 849.6 | 1440 | 1209.6 | 32 | 0.027 | ND | <0.000021 | ND | <0.000021 |
| 1209432-12 | 1692 | 09/19/2012 | 17 | 1132.8 | 1458 | 1633.0 | 77 | 0.047 | 34 | 0.000021 | ND | <0.000015 |
| 1209432-15 | 1695 | 09/19/2012 | 22 | 849.6 | 1464 | 1229.8 | 38 | 0.031 | ND | <0.000020 | ND | <0.000020 |
| 1210077-02 | 1698 | 09/28/2012 | 17 | 991.2 | 318 | 311.6 | 15 | 0.048 | ND | <0.000080 | ND | <0.000080 |
| 1210077-05 | 1701 | 09/28/2012 | 22 | 1132.8 | 318 | 356.2 | 3.4 | 0.0095 | ND | <0.000070 | ND | <0.000070 |
| 1210164-02 | 1704 | 10/01/2012 | 17 | 566.4 | 2736 | 1532.2 | 110 | 0.072 | 61 | 0.000040 | ND | <0.000016 |
| 1210164-05 | 1707 | 10/01/2012 | 22 | 750.5 | 2730 | 2006.6 | 85 | 0.042 | 41 | 0.000020 | ND | <0.000012 |
| 1210164-07 | 1710 | 10/03/2012 | 17 | 849.6 | 1404 | 1179.4 | 95 | 0.081 | 53 | 0.000045 | ND | <0.000021 |
| 1210164-10 | 1713 | 10/03/2012 | 22 | 877.9 | 1404 | 1199.0 | 46 | 0.039 | ND | <0.000021 | ND | <0.000021 |
| 1210206-02 | 1716 | 10/04/2012 | 17 | 849.6 | 1506 | 1265.0 | 72 | 0.057 | 42 | 0.000033 | ND | <0.000020 |
| 1210206-05 | 1719 | 10/04/2012 | 22 | 906.2 | 1476 | 1219.2 | 30 | 0.025 | ND | <0.000021 | ND | <0.000021 |
| 1210206-07 | 1722 | 10/05/2012 | 17 | 849.6 | 282 | 236.9 | 16 | 0.066 | ND | <0.00011 | ND | <0.00011 |
| 1210206-10 | 1725 | 10/05/2012 | 22 | 736.3 | 300 | 214.2 | 2.3 | 0.011 | ND | <0.00012 | ND | <0.00012 |
| 1210324-02 | 1728 | 10/08/2012 | 17 | 991.2 | 1500 | 1239.0 | 38 | 0.030 | ND | <0.000020 | ND | <0.000020 |
| 1210324-05 | 1731 | 10/08/2012 | 22 | 962.9 | 1428 | 1279.5 | 22 | 0.017 | ND | <0.000020 | ND | <0.000020 |
| 1210324-07 | 1734 | 10/09/2012 | 17 | 849.6 | 1398 | 1174.3 | 42 | 0.035 | ND | <0.000021 | ND | <0.000021 |
| 1210324-10 | 1737 | 10/09/2012 | 22 | 1076.2 | 1398 | 1330.9 | 24 | 0.018 | ND | <0.000019 | ND | <0.000019 |
| 1210324-12 | 1740 | 10/10/2012 | 17 | 849.6 | 1410 | 1164.7 | 86 | 0.073 | 48 | 0.000042 | ND | <0.000021 |
| 1210324-15 | 1743 | 10/10/2012 | 22 | 849.6 | 1434 | 1204.6 | 64 | 0.053 | 39 | 0.000032 | ND | <0.000021 |
| 1210386-02 | 1746 | 10/11/2012 | 17 | 877.9 | 1488 | 1197.8 | 32 | 0.026 | ND | <0.000021 | ND | <0.000021 |
| 1210386-04 | 1752 | 10/12/2012 | 17 | 906.2 | 378 | 312.2 | 9.8 | 0.031 | ND | <0.000080 | ND | <0.000080 |
| 1210386-07 | 1755 | 10/12/2012 | 22 | 906.2 | 1434 | 1224.6 | 3.2 | 0.0026 | ND | <0.000020 | ND | <0.000020 |

Total Suspended Particulates (TSP), Manganese (Mn) and Lead (Pb)

Dates Monitored: 10/6/10 through 11/13/12

Cal-OSHA Permissible Exposure Limits: TSP - 10 mg/m³; Manganese - 200 ug/m³; Lead - 50 ug/m³

| Sample, Date and Station Information | | | | Sampler Run Information | | | Total Suspended Particulates | | Manganese | | Lead | |
|--------------------------------------|-----------------|-------------|--------------------|-------------------------|-----------------|----------------------------|------------------------------|----------------------|------------|----------------------|------------|----------------------|
| Sample ID | Sample Field ID | Sample Date | Monitoring Station | Ave Flow Rate | Duration of Run | Total Air Volume Monitored | Total Mass | Concentration in Air | Total Mass | Concentration in Air | Total Mass | Concentration in Air |
| | | | | (l/min) | (min) | (m ³) | (mg) | (mg/m ³) | (mass, ug) | (mg/m ³) | (mass, ug) | (mg/m ³) |
| 1210457-02 | 1758 | 10/15/2012 | 17 | 991.2 | 1440 | 1169.3 | 23 | 0.020 | ND | <0.000021 | ND | <0.000021 |
| 1210457-05 | 1761 | 10/15/2012 | 22 | 1019.5 | 1446 | 1417.1 | 19 | 0.013 | ND | <0.000018 | ND | <0.000018 |
| 1210457-07 | 1764 | 10/16/2012 | 17 | 991.2 | 1440 | 1370.9 | 70 | 0.051 | 34 | 0.000024 | ND | <0.000018 |
| 1210457-10 | 1767 | 10/16/2012 | 22 | 991.2 | 1410 | 1322.6 | 34 | 0.025 | ND | <0.000019 | ND | <0.000019 |
| 1210457-12 | 1770 | 10/17/2012 | 17 | 1132.8 | 1452 | 1544.9 | 75 | 0.049 | 49 | 0.000032 | ND | <0.000016 |
| 1210457-15 | 1773 | 10/17/2012 | 22 | 1019.5 | 1452 | 1362.0 | 63 | 0.046 | 38 | 0.000028 | ND | <0.000018 |
| 1210522-02 | 1776 | 10/18/2012 | 17 | 1104.5 | 1434 | 1505.7 | 78 | 0.052 | 50 | 0.000033 | ND | <0.000017 |
| 1210522-05 | 1779 | 10/18/2012 | 22 | 991.2 | 1434 | 1325.0 | 58 | 0.044 | 39 | 0.000029 | ND | <0.000019 |
| 1210522-07 | 1782 | 10/19/2012 | 17 | 1076.2 | 318 | 329.4 | 12 | 0.036 | ND | <0.000076 | ND | <0.000076 |
| 1210522-10 | 1785 | 10/19/2012 | 22 | 991.2 | 318 | 307.2 | 10 | 0.034 | ND | <0.000081 | ND | <0.000081 |
| 1210614-02 | 1788 | 10/23/2012 | 17 | 991.2 | 426 | 399.6 | 6.1 | 0.015 | ND | <0.000063 | ND | <0.000063 |
| 1210614-05 | 1791 | 10/23/2012 | 22 | 991.2 | 318 | 307.2 | 1.1 | 0.0036 | ND | <0.000081 | ND | <0.000081 |
| 1210614-07 | 1794 | 10/24/2012 | 17 | 849.6 | 1446 | 1133.7 | 14 | 0.012 | ND | <0.000022 | ND | <0.000022 |
| 1210614-10 | 1797 | 10/24/2012 | 22 | 991.2 | 1446 | 1174.2 | 7.9 | 0.0067 | ND | <0.000021 | ND | <0.000021 |
| 1211059-02 | 1806 | 10/29/2012 | 17 | 906.2 | 1458 | 1224.7 | 68 | 0.056 | 56 | 0.000045 | ND | <0.000020 |
| 1211059-05 | 1809 | 10/29/2012 | 22 | 1132.8 | 1434 | 1445.5 | 8.5 | 0.0059 | ND | <0.000017 | ND | <0.000017 |
| 1211059-07 | 1812 | 10/30/2012 | 17 | 849.6 | 1944 | 1578.5 | 50 | 0.031 | 41 | 0.000026 | ND | <0.000016 |
| 1211059-10 | 1815 | 10/30/2012 | 22 | 991.2 | 1464 | 1393.7 | 2.6 | 0.0019 | ND | <0.000018 | ND | <0.000018 |
| 1211059-14 | 1821 | 10/31/2012 | 22 | 991.2 | 480 | 450.2 | ND | <0.0022 | ND | <0.000056 | ND | <0.000056 |
| 1211110-02 | 1824 | 11/01/2012 | 17 | 1019.5 | 1458 | 1347.2 | 44 | 0.033 | ND | <0.000019 | ND | <0.000019 |
| 1211110-05 | 1827 | 11/01/2012 | 22 | 1189.4 | 1452 | 1524.6 | 18 | 0.012 | ND | <0.000016 | ND | <0.000016 |
| 1211110-07 | 1830 | 11/02/2012 | 17 | 849.6 | 360 | 302.4 | 26 | 0.086 | ND | <0.000083 | ND | <0.000083 |
| 1211110-10 | 1833 | 11/02/2012 | 22 | 849.6 | 360 | 302.4 | 13 | 0.0086 | ND | <0.000016 | ND | <0.000016 |
| 1211228-02 | 1836 | 11/05/2012 | 17 | 962.9 | 1416 | 1268.7 | 110 | 0.089 | 93 | 0.000073 | ND | <0.000020 |
| 1211228-05 | 1839 | 11/05/2012 | 22 | 1189.4 | 1410 | 1500.2 | 40 | 0.027 | 27 | 0.000018 | ND | <0.000017 |
| 1211228-07 | 1842 | 11/06/2012 | 17 | 962.9 | 1446 | 1295.6 | 90 | 0.070 | 62 | 0.000048 | ND | <0.000019 |
| 1211228-10 | 1845 | 11/06/2012 | 22 | 962.9 | 1434 | 1365.2 | 45 | 0.033 | 29 | 0.000021 | ND | <0.000018 |
| 1211228-12 | 1848 | 11/07/2012 | 17 | 962.9 | 1386 | 1261.3 | 91 | 0.072 | 54 | 0.000043 | ND | <0.000020 |
| 1211228-15 | 1851 | 11/07/2012 | 22 | 991.2 | 1392 | 1286.2 | 73 | 0.057 | 57 | 0.000045 | 35 | 0.000027 |
| 1211284-02 | 1854 | 11/08/2012 | 17 | 906.2 | 1464 | 1270.8 | 48 | NA | 30 | NA | ND | NA |
| 1211284-05 | 1857 | 11/08/2012 | 22 | 906.2 | 1458 | 1296.2 | 21 | NA | ND | NA | ND | NA |
| 1211284-07 | 1860 | 11/09/2012 | 17 | 906.2 | 372 | 322.9 | 13 | NA | ND | NA | ND | NA |
| 1211284-10 | 1863 | 11/09/2012 | 22 | 962.9 | 378 | 338.7 | 2.0 | NA | ND | NA | ND | NA |
| 1211356-02 | 1866 | 11/12/2012 | 17 | 962.9 | 1404 | 1258.0 | 99 | 0.079 | 87 | 0.000069 | ND | <0.000020 |
| 1211356-05 | 1869 | 11/12/2012 | 22 | 991.2 | 1398 | 1311.3 | 32 | 0.024 | ND | <0.000019 | ND | <0.000019 |
| 1211356-08 | 1875 | 11/13/2012 | 22 | 991.2 | 1428 | 1339.5 | 35 | 0.026 | ND | <0.000019 | ND | <0.000019 |

l/min = liters per minute

min = minutes

m³ = cubic meters

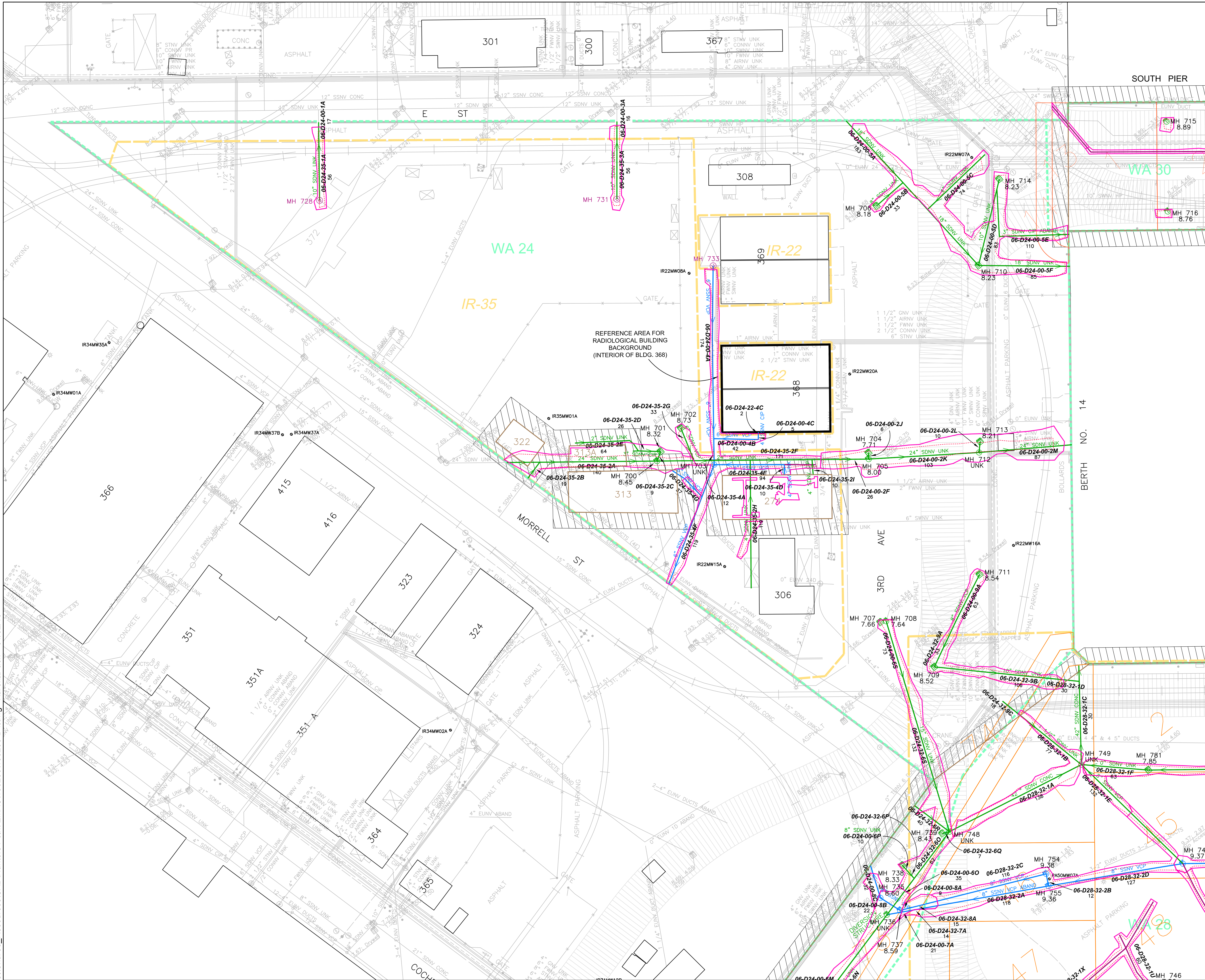
mg = milligrams

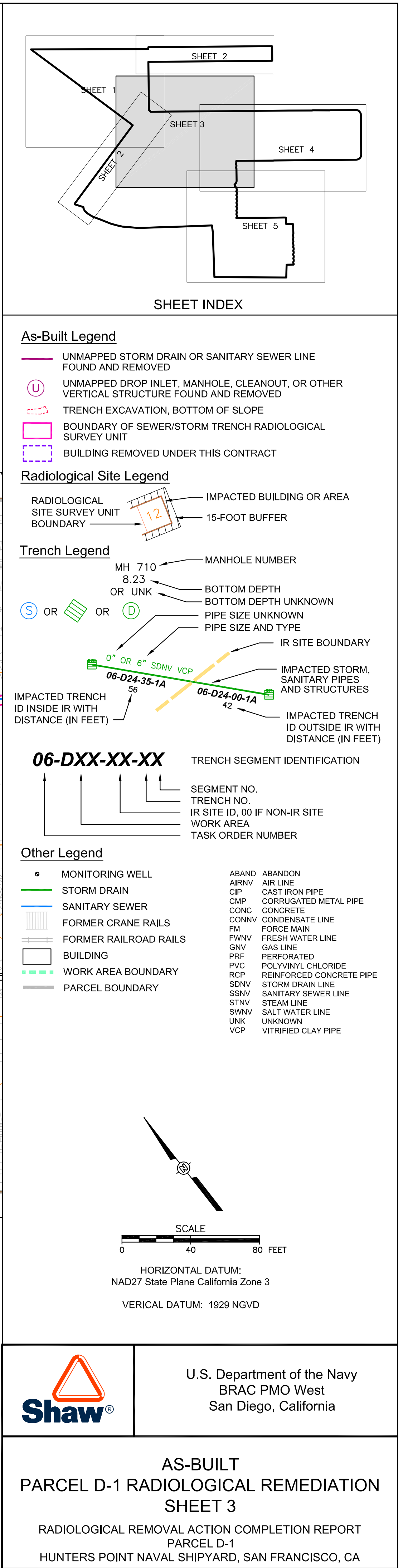
mg/m³ = milligrams per cubic meter

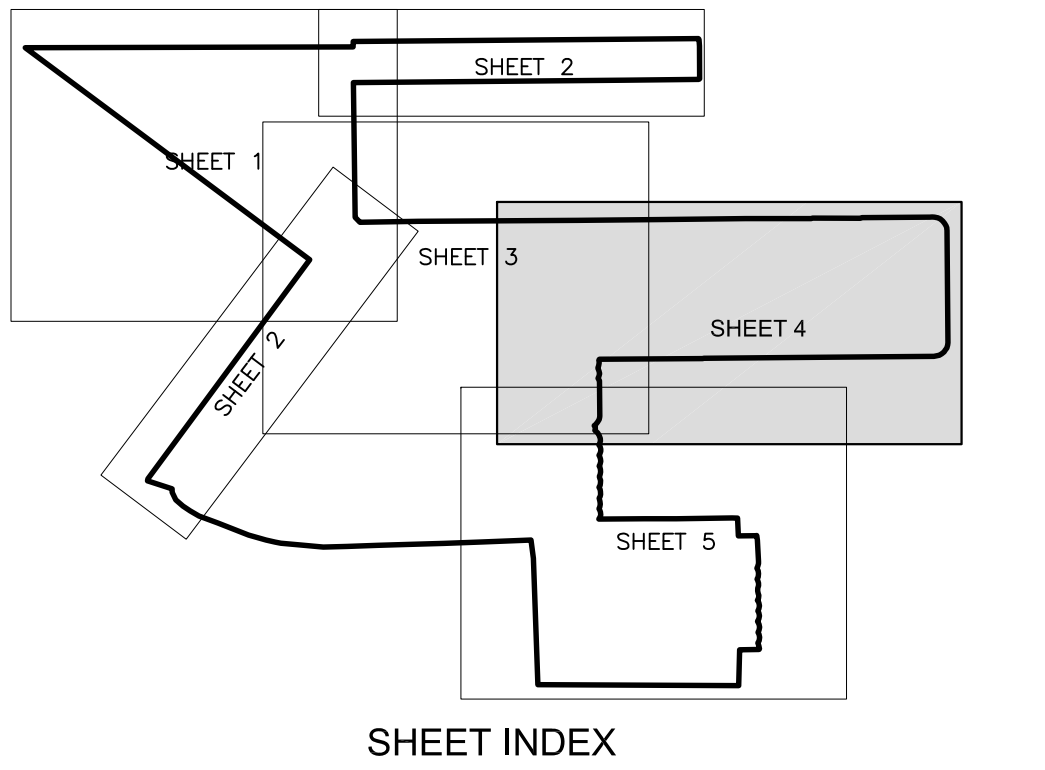
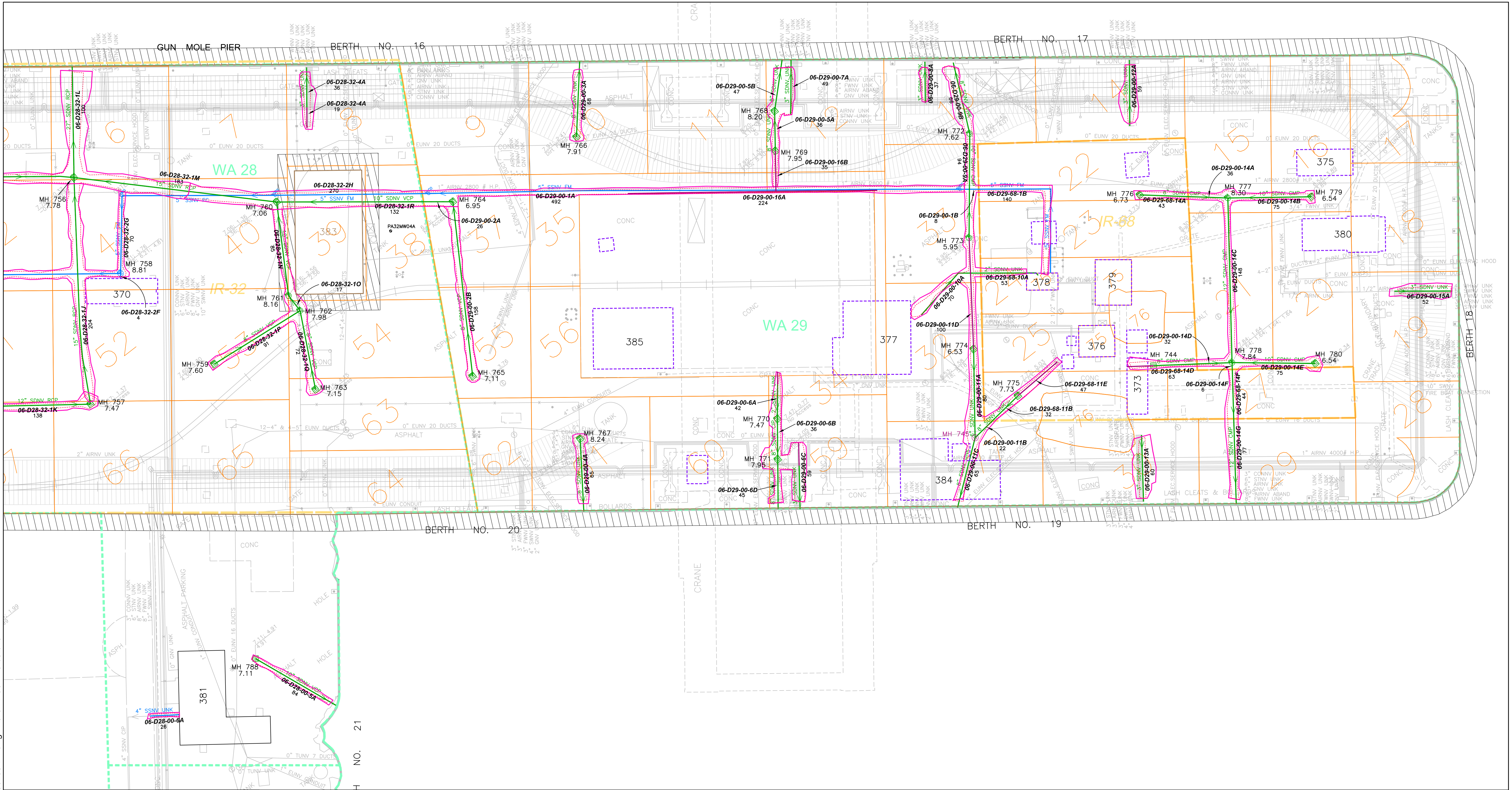
ug = micrograms

Appendix C

As-Built Drawings



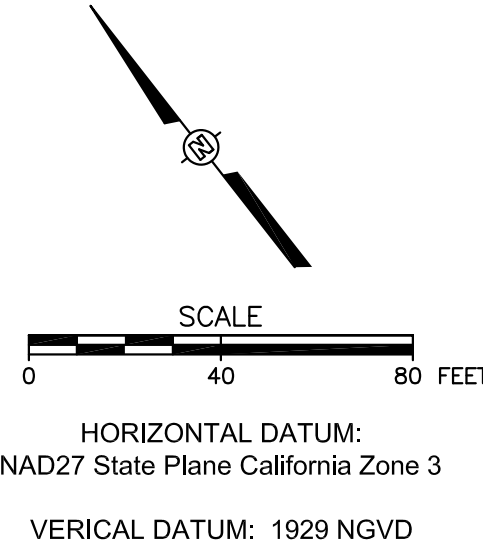




- As-Built Legend**
- UNMAPPED STORM DRAIN OR SANITARY SEWER LINE FOUND AND REMOVED
 - UNMAPPED DROP INLET, MANHOLE, CLEANOUT, OR OTHER VERTICAL STRUCTURE FOUND AND REMOVED
 - TRENCH EXCAVATION, BOTTOM OF SLOPE
 - BOUNDARY OF SEWER/STORM TRENCH RADIOLOGICAL SURVEY UNIT
 - BUILDING REMOVED UNDER THIS CONTRACT
- Radiological Site Legend**
- RADIOLOGICAL SITE SURVEY UNIT BOUNDARY
 - IMPACTED BUILDING OR AREA
 - 15-FOOT BUFFER

- Trench Legend**
- MANHOLE NUMBER
 - BOTTOM DEPTH
 - BOTTOM DEPTH UNKNOWN
 - PIPE SIZE UNKNOWN
 - PIPE SIZE AND TYPE
 - IR SITE BOUNDARY
 - IMPACTED STORM, SANITARY PIPES AND STRUCTURES
 - IMPACTED TRENCH ID INSIDE IR WITH DISTANCE (IN FEET)
 - IMPACTED TRENCH ID OUTSIDE IR WITH DISTANCE (IN FEET)
- 06-DXX-XX-XX** TRENCH SEGMENT IDENTIFICATION
- SEGMENT NO.
 - TRENCH NO.
 - IR SITE ID, 00 IF NON-IR SITE
 - WORK AREA
 - TASK ORDER NUMBER

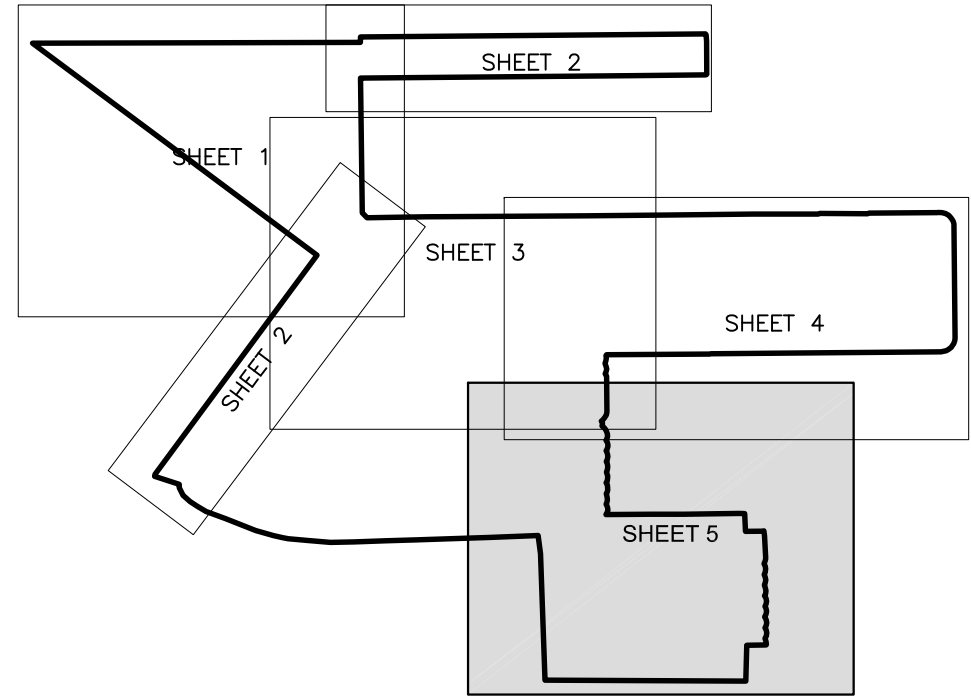
- Other Legend**
- MONITORING WELL
 - STORM DRAIN
 - SANITARY SEWER
 - FORMER CRANE RAILS
 - FORMER RAILROAD RAILS
 - BUILDING
 - WORK AREA BOUNDARY
 - PARCEL BOUNDARY
- ABAND ABANDON
AIRNV AIR LINE
CIP CAST IRON PIPE
CMP CORRUGATED METAL PIPE
CONC CONCRETE
CONNV CONDENSATE LINE
FM FORCE MAIN
FWNV FRESH WATER LINE
GNV GAS LINE
PRF PERFORATED
PVC POLYVINYL CHLORIDE
RCP REINFORCED CONCRETE PIPE
SDNV STORM DRAIN LINE
STNV SANITARY SEWER LINE
SWNV SALT WATER LINE
UNK UNKNOWN
VCP VITRIFIED CLAY PIPE



U.S. Department of the Navy
BRAC PMO West
San Diego, California

**AS-BUILT
PARCEL D-1 RADIOLOGICAL REMEDIATION
SHEET 4**

RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT
PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA



SHEET INDEX

As-Built Legend

- UNMAPPED STORM DRAIN OR SANITARY SEWER LINE FOUND AND REMOVED
- UNMAPPED DROP INLET, MANHOLE, CLEANOUT, OR OTHER VERTICAL STRUCTURE FOUND AND REMOVED
- TRENCH EXCAVATION, BOTTOM OF SLOPE
- BOUNDARY OF SEWER/STORM TRENCH RADIOLOGICAL SURVEY UNIT
- BUILDING REMOVED UNDER THIS CONTRACT

Radiological Site Legend

- RADIOLOGICAL SITE SURVEY UNIT BOUNDARY
- IMPACTED BUILDING OR AREA
- 15-FOOT BUFFER

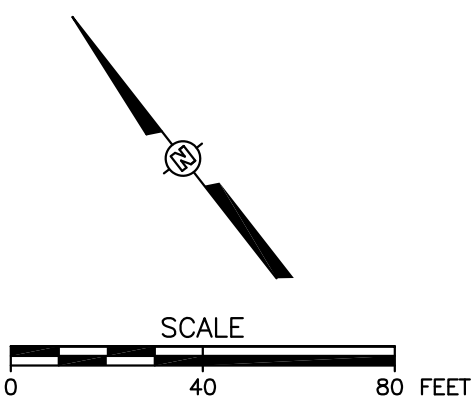
Trench Legend

- MANHOLE NUMBER
- BOTTOM DEPTH
- OR UNK
- PIPE SIZE UNKNOWN
- PIPE SIZE AND TYPE
- IR SITE BOUNDARY
- IMPACTED STORM, SANITARY PIPES AND STRUCTURES
- IMPACTED TRENCH ID INSIDE IR WITH DISTANCE (IN FEET)
- IMPACTED TRENCH ID OUTSIDE IR WITH DISTANCE (IN FEET)

- 06-DXX-XX-XX
- TRENCH SEGMENT IDENTIFICATION
 - SEGMENT NO.
 - TRENCH NO.
 - IR SITE ID, 00 IF NON-IR SITE
 - WORK AREA
 - TASK ORDER NUMBER

Other Legend

- MONITORING WELL
- STORM DRAIN
- SANITARY SEWER
- FORMER CRANE RAILS
- FORMER RAILROAD RAILS
- BUILDING
- WORK AREA BOUNDARY
- PARCEL BOUNDARY
- ABANDON
- ABANDON AIR LINE
- CAST IRON PIPE
- CORRUGATED METAL PIPE
- CONCRETE
- CONDENSATE LINE
- FORCE MAIN
- FRESH WATER LINE
- GAS LINE
- PERFORATED
- POLYVINYL CHLORIDE
- REINFORCED CONCRETE PIPE
- STORM DRAIN LINE
- SANITARY SEWER LINE
- STEAM LINE
- SALT WATER LINE
- UNKNOWN
- VITRIFIED CLAY PIPE



HORIZONTAL DATUM:
NAD27 State Plane California Zone 3
VERTICAL DATUM: 1929 NGVD



U.S. Department of the Navy
BRAC PMO West
San Diego, California

AS-BUILT
PARCEL D-1 RADIOLOGICAL REMEDIATION
SHEET 5

RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT
PARCEL D-1
HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CA

Appendix D

Work Variances

Work Variance

Page 1 of 1

| | | |
|---|---------------------------------------|---------------------------|
| Project Name: HPS CTO 6 Radiological Remediation and Support, Parcel D-1 | | |
| Project Number: 136250 | Project Manager: Frank Hackett | WV #: 1 |
| Contract Number: N62473-08-D-8822 | SWDIV RPM: James Whitcomb | Date: 04/07/2011 |
| CTO Number: CTO 0006 | SWDIV CS: Cynthia Mafara | |
| Item: Change of Radiological Posting Req'm'ts | | Primary WBS: _____ |

Description (Include Action Taken to Date):
1. Radiation Protection Plan, Section 3.14.4- Contamination Area
 Section 3.14.4, paragraph 1, requires that soil excavation areas are posted as Contamination Areas (CA). Posting soil excavation areas as CA is not a shipyard standard practice and is not consistent with base-wide contractor posting practices.

Recommendations / Proposed Corrective Action (Include Justification, if Needed):
1. Revise Radiation Protection Plan, Section 3.14.4- Contamination Area, paragraph 1, deleting "and for any soil excavation area".

| | | |
|--|--|---|
| Aprx range of Cost Impact None | Potential Schedule Impact None | WBS Information <input type="checkbox"/> WBS Code(s) Opened to Capture Cost |
|--|--|---|

Applicable Document(s):
 Radiation Protection Plan, Parcel D-1 Radiological Remediation and Support, Hunters Point Shipyard, San Francisco, CA July 19, 2010.

| | | | | | | | | | | | |
|---|--|-------------------------------|--------------------|-------------------------------------|--------------------|------------------------------|--|------------------|---------------------------|-----------|-------------|
| Disposition of Work Variance <i>* To be completed by Project Manager *</i> <input type="checkbox"/> Monitor: No notice to Navy Review by _____ (Date) <input type="checkbox"/> E-mail Notification to Navy <input type="checkbox"/> Obtain Technical Direction Letter <input type="checkbox"/> Notice of Change <input type="checkbox"/> Request for Additional Funds (RAF) <input type="checkbox"/> Other (Please Comment) | Type of Change: Additional Comments: <hr/> Approvals <table style="width: 100%;"> <tr> <td>Project Manager: _____</td> <td>Date: _____</td> </tr> <tr> <td>PMO Contracts Manager: _____</td> <td>Date: _____</td> </tr> <tr> <td colspan="2">Project Distribution:</td> </tr> <tr> <td>QC Manager _____</td> <td>Site Superintendent _____</td> </tr> <tr> <td>CSE _____</td> <td>ROICC _____</td> </tr> </table> | Project Manager: _____ | Date: _____ | PMO Contracts Manager: _____ | Date: _____ | Project Distribution: | | QC Manager _____ | Site Superintendent _____ | CSE _____ | ROICC _____ |
| Project Manager: _____ | Date: _____ | | | | | | | | | | |
| PMO Contracts Manager: _____ | Date: _____ | | | | | | | | | | |
| Project Distribution: | | | | | | | | | | | |
| QC Manager _____ | Site Superintendent _____ | | | | | | | | | | |
| CSE _____ | ROICC _____ | | | | | | | | | | |

Work Variance

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to the PMO allows a PM to direct a variation in work that may put the company at financial risk **for up to one business day**. During that time, the PM gathers additional information, assesses the situation and coordinates with the IT Contracts Administration Manager (and others, as appropriate) to determine further actions.

Close coordination with the Client is expected throughout the process.

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

Work Variance

Shaw Environmental & Infrastructure, Inc.

3.14.4 Contamination Area

A Contamination Area is any area inside the RCA that approaches or has the potential to exceed the administrative controls threshold values for surface contamination listed in Table 3. Contamination is defined as quantities of radioactive material in excess of the surface or soil values listed in Table 3.

Entry into a Contamination Area has the same requirements specified for RCA entry plus RCT coverage, and any other controls specified in the RWP. Visitors to the site will not be allowed to enter Contamination Areas.

At a minimum, a Contamination Area boundary may be delineated with rope that is specially colored to signify a radiation hazard/delineation (rad rope) supported on posts. More substantial barriers, such as temporary or permanent fencing, may be used as necessary.

A Contamination Area is posted with a yellow sign with a magenta or black radiation symbol (trefoil) and magenta or black lettering (may be printed on a white insert) that states "Caution - Contamination Area, RWP Required for Entry" in English and Spanish and any other information specified by the RCS. A minimum of one sign shall be posted on each straight run of the Contamination Area boundary. Additional signs should be placed on long (greater than 60 feet) runs of the boundary.

3.14.5 High Contamination Area

A High Contamination Area is any area within the RCA that approaches or has the potential to exceed the engineering controls threshold values for surface contamination or soil listed in Table 3. Entry requirements for High Contamination Areas are the same as those specified for Contamination Areas plus additional controls and PPE as specified in the applicable RWP. Visitors to the site will not be allowed to enter High Contamination Areas.

At a minimum, a High Contamination Area boundary may be delineated with rad rope supported on posts. More substantial barriers, such as temporary or permanent fencing, may be used.

A High Contamination Area is posted with a yellow sign with a magenta or black radiation symbol (trefoil) and magenta or black lettering (may be printed on a white insert) that states "Caution - High Contamination Area, RWP Required for Entry" in English and Spanish and any other information specified by the RCS. A minimum of one sign shall be posted on each straight run of the High Contamination Area boundary. Additional signs should be placed on long (greater than 60 feet) runs of the boundary.

Work Variance

Page 1 of 1

| | | |
|---|---------------------------------------|---------------------------|
| Project Name: HPS CTO 6 Radiological Remediation and Support, Parcel D-1 | | |
| Project Number: 136250 | Project Manager: Frank Hackett | WV #: 2 |
| Contract Number: N62473-08-D-8822 | SWDIV RPM: Chris Yantos | Date: 08/24/2011 |
| CTO Number: CTO 0006 | SWDIV CS: Cynthia Mafara | |
| Item: Delete FIDLER survey requirements. | | Primary WBS: _____ |

Description (Include Action Taken to Date):
1. Task Specific Plan, Gun Mole Pier Area Scoping Survey, Section 2.7- Gamma Scans
 Section 2.7, paragraph 2: Requires performance of FIDLER surveys on the Gun Mole Pier asphalt surfaces prior to asphalt removal.

Recommendations / Proposed Corrective Action (Include Justification, if Needed):
 Delete requirement to perform FIDLER surveys on the remaining asphalt covered portions of the Gun Mole Pier. This remaining surface area, the newly acquired RSY section, contains Gun Mole Pier Survey Units 46, 47, 48, 49, 50, 51, 66, 67, 68, 69, 70, 71, 72 and portions of 73. .
 1. Navy RASO (Slack) and RPM (Yantos) determined that the remaining Gun Mole Pier asphalt covered surfaces do not require FIDLER survey. .

| | | |
|--|--|---|
| Aprx range of Cost Impact None | Potential Schedule Impact None | WBS Information <input type="checkbox"/> WBS Code(s) Opened to Capture Cost |
|--|--|---|

Applicable Document(s):
 Task Specific Plan, Gun Mole Pier Area Scoping Survey, Hunters Point Shipyard, San Francisco, CA Jan 2011.

| | |
|---|---|
| Disposition of Work Variance <i>* To be completed by Project Manager *</i> <input type="checkbox"/> Monitor: No notice to Navy Review by _____ (Date) <input type="checkbox"/> E-mail Notification to Navy <input type="checkbox"/> Obtain Technical Direction Letter <input type="checkbox"/> Notice of Change <input type="checkbox"/> Request for Additional Funds (RAF) <input type="checkbox"/> Other (Please Comment) | Type of Change: Additional Comments: <hr/> Approvals Project Manager: _____ Date: _____ PMO Contracts Manager: _____ Date: _____ Project Distribution: QC Manager ____ Site Superintendent ____ CSE ____ ROICC ____ |
|---|---|

Work Variance

This form documents a newly discovered or developing situation. Submitting a Work Variance (WV) to the PMO allows a PM to direct a variation in work that may put the company at financial risk **for up to one business day**. During that time, the PM gathers additional information, assesses the situation and coordinates with the IT Contracts Administration Manager (and others, as appropriate) to determine further actions.

Close coordination with the Client is expected throughout the process.

However, a WV form does not require Client review or approval; it depends solely on the good judgment of the PM to act in the best interest of the Client and the company. By itself, a **WV does not seek anything** (though it may provide the documentation to support a request for additional funding or guidance).

FIELD WORK VARIANCE

Page 1 of 1

| | | |
|--|---------------------------------------|---------------------------------|
| Project Name: HPNS CTO 006 Parcel D-1 Radiological Radiological Remediation | | DCN: SHAW-8822-0006-0146 |
| Project Number: 136250 | Project Manager: Ulrika Messer | WV #: 003 |
| Contract Number: N62473-08-D-8822 | SWDIV RPM: Chris Yantos | Date: 6/19/2012 |
| CTO Number: CTO 0006 | SWDIV CS: Cynthia Mafara | |
| Item: Instrument Background & Source Response Check Requirem. | | Primary WBS: _____ |

Description (Include recommended action to resolve changed condition and action taken to date)

Final Radiological Work Plan, Section 7.0 Instrumentation, 7.1.2 Daily Performance

Change Daily Performance Checks - Work Plan currently requires that instrument background and source response checks be performed twice a day, one set of instrument checks is performed as a pre-use check, the other, at the end of the shift, as a post-use check. Action: Delete the words "and end". **CHANGE TEXT TO READ:** " Radiological survey instruments will be function checked (background and source response) at the beginning of each shift in accordance with Shaw SOP T-RA-006: Radiological Controls Portable Instrument Procedure. Only instruments that comply with the pre-determined instrument specific response range may be used".

Reason for Change

End of shift background and source response checks are a high-level effort without performance and/or quality benefit. The pre-use check in the morning would perform as an end-of-shift response check for the previous day and capture any potential instrument deficiency. Consequently, the end of shift check requirement is removed.

Technical Justification - See above

| | | |
|--------------------------------------|--|--|
| Estimated Cost Impact None | Estimated Schedule Impact None | WBS Information <input type="checkbox"/> WBS Code Opened to Capture Cost Task Title: WBS Code: |
|--------------------------------------|--|--|

Applicable Document(s)

Final Parcel D-1 Radiological Work Plan

| | | | | | |
|---|--|--------------------------------------|--------------------|---|--------------------|
| <p>PMO Disposition of Work Variance</p> <p><input type="checkbox"/> Monitor; No notice to Navy Review by _____ (Date)</p> <p><input checked="" type="checkbox"/> E-Mail Notification to Navy</p> <p><input type="checkbox"/> Notice of Potential Impact (NOPI)</p> <p><input type="checkbox"/> Request for Additional Funds (RAF)</p> <p><input type="checkbox"/> Other (Please Comment)</p> | <p>Type of Change: _____</p> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>Additional Comments</p> <p>WV prepared by - Raymond Schul - 06/18/2012</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Approvals</p> <table style="width: 100%;"> <tr> <td style="width: 50%;">Project Manager <u>Messer</u></td> <td style="width: 50%;">Date: _____</td> </tr> <tr> <td>PMO Contracts Manager <u>N/A</u></td> <td>Date: _____</td> </tr> </table> </div> | Project Manager <u>Messer</u> | Date: _____ | PMO Contracts Manager <u>N/A</u> | Date: _____ |
| Project Manager <u>Messer</u> | Date: _____ | | | | |
| PMO Contracts Manager <u>N/A</u> | Date: _____ | | | | |

FIELD WORK VARIANCE

| | | |
|--|---------------------------------------|---------------------------------|
| Project Name: HPNS CTO 6 FINAL WORK PLAN Parcel D-1 SD and SS Removal | | DCN: SHAW-8822-0006-0148 |
| Project Number: 136250 | Project Manager: Ulrika Messer | WV #: 4 |
| Contract Number: N62473-08-D-8822 | SWDIV RPM: Chris Yantos | Date: 9/5/2012 |
| CTO Number: CTO 0006 | SWDIV CS: Cynthia Mafara | |
| Item: Revision to removed asphalt disposition requirements. | | Primary WBS: 136250 |

Description (Include recommended action to resolve changed condition and action taken to date)

Project Work Plan Section 7.8.3 requires the control of removed asphalt as LLRW if radiological contamination is identified in the area where the asphalt was removed. Asphalt staged in Survey Unit (SU) point of origin designated piles (approx 3,000 cy), by procedure, requires control as LLRW due to identified levels of Cs137 radioactivity from the soil from which the asphalt was removed from.

ACTION: 1) Revise text, 3rd paragraph that reads: "If there is any indication that the soils underlying the asphalt or concrete are radiologically impacted, the removed pavement will be classified as LLRW" to read: " If evaluation of in-process asphalt removal surveys and soil/asphalt sampling provide any indication that the removed asphalt may be potentially radiologically impacted, the removed asphalt will be classified as LLRW".

2) Crush HPNS South Pier (SP) and Gun Mole Pier (GMP) staged asphalt and return to SP and GMP as surface cover.

3) Disposition GMP SU 26 asphalt as LLRW.

See Technical Justification below.

Reason for Change

The reason for variance is to permit the minimization of LLRW by implementing additional evaluation requirements.

Technical Justification - The soil samples taken to characterize the soils below the removed asphalt, may not accurately represent levels of radioactivity within the removed asphalt:

1. Gamma scan measurements performed on the asphalt surface prior to the removal of the asphalt did not detect the presence of radioactivity that would implement a LLRW control requirement for the asphalt.
2. Gamma scan and static measurements performed during the asphalt removal process did not detect the presence of radioactivity that would implement a LLRW control requirement of the removed asphalt or the underlying soils.
3. Asphalt and surface soil samples taken during the asphalt removal process at scan "investigation" locations did not detect the presence of radioactivity that would implement a LLRW control requirement of the removed/sampled asphalt or the surface soil in these investigation locations.
4. The average quantity of radioactivity detected in the soil samples obtained under this asphalt (total volume= 2,809 cy) would not be a significant cross contamination concern due to the level of radioactivity or migration of radioactivity in contacting the asphalt above:

-GMP average Cs137 radioactivity = 0.049 pCi/gm

-GMP average Ra226 radioactivity = N/A

-SP average Cs137 radioactivity = 0.041 pCi/gm

-SP average Ra226 radioactivity = 0.765 pCi/gm

-Maintaining a conservative approach in the evaluation and control of shipyard materials, the asphalt from GMP surface SU 26 is not included in this evaluation, the asphalt from SU 26 (175 cy) will be dispositioned as LLRW.

5. The maximum concentration of Cs137 and Ra226 (where applicable) radioactivity detected in the soil samples taken from the location of removed the asphalt, if evenly distributed over the surface of the removed asphalt, following the project release criteria/work plans, would not require that the asphalt be controlled as LLRW. See attached spreadsheet data which illustrates the maximum activity concentrations and the resulting potential dpm/100cm² values for both Cs137 and Ra226.

--Based on this review, radiological impacts to the recently (2011/2012) removed asphalt from historical radiological activities is not expected.

FIELD WORK VARIANCE

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|---|---|---|
| <p>Estimated Cost Impact</p> <p>Reduced disposal cost to Navy</p> | <p>Estimated Schedule Impact</p> <p>1 week</p> | <p>WBS Information</p> <p><input type="checkbox"/> WBS Code Opened to Capture Cost</p> <p>Task Title:</p> <p>WBS Code:</p> |
| <p>Applicable Document(s)</p> <p>Final Project Work Plan, Parcel D-1 Storm Drain and Sanitary Sewer Removal, Hunters Point Shipyard, San Francisco, California July 14, 2010</p> | | |

| | |
|--|---|
| PMO Disposition of Work Variance | Type of Change: _____ |
| <input type="checkbox"/> Monitor; No notice to Navy Review by _____ (Date) | Additional Comments Prepared by Raymond Schul, PRSO 9/24/2012 |
| <input checked="" type="checkbox"/> E-Mail Notification to Navy | |
| <input type="checkbox"/> Notice of Potential Impact (NOPI) | |
| <input type="checkbox"/> Request for Additional Funds (RAF) | |
| <input type="checkbox"/> Other (Please Comment) | |
| <div><div>Approvals</div><div><div>Project Manager</div><div>PMO Contracts Manager</div></div><div><div>Ulrika T. Messer</div><div><small>Digitally signed by Ulrika T. Messer DN: cn=Ulrika T. Messer, o, ou=1215455, Federal, email=ulrika.messer@shawgrp.co m, c=US Date: 2012.09.26 15:50:00 -0700</small></div></div><div>Date: _____ Date: _____</div></div> | |

FIELD WORK VARIANCE

| | | |
|--|---------------------------------------|---------------------------------|
| Project Name: HPNS CTO 6 FINAL TSP Addendum GMP Area Scoping Survey | | DCN: SHAW-8822-0006-0148 |
| Project Number: 136250 | Project Manager: Ulrika Messer | WV #: 5 |
| Contract Number: N62473-08-D-8822 | SWDIV RPM: Chris Yantos | Date: 10/3/2012 |
| CTO Number: CTO 0006 | SWDIV CS: Cynthia Mafara | |
| Item: Modification of Surface Scan Practice | | Primary WBS: 136250 |

Description (Include recommended action to resolve changed condition and action taken to date)

TSP Section 3.4 Utility Corridors- Requires surveys of 25% of the corridors interior surface areas. This has been performed for GMP utility corridors GEC01, GEC02 and GEC03, but cannot be performed for utility corridor GEC04 because of health and safety concerns due to presence of deteriorated asbestos lagged piping. Access is prevented until asbestos material is abated, which can only be conducted by a licensed asbestos abatement contractor.

ACTION: 1) Revise text, 1st paragraph, 3rd sentence from "As a result, an investigative survey with a coverage goal of 25 percent of the total interior surface area of the corridors shall be performed. To achieve this coverage goal, it is assumed that approximately 5 m² of survey of accessible corridor surfaces will be performed every 6 meters (20 linear feet)." to read; "As a result, an investigative survey with a coverage goal of 25 percent of the total interior surface area of the corridors shall be performed for corridors GEC01, GEC02 and GEC03, 25 percent of the total accessible exterior surface area shall be performed for corridor GEC04. To achieve this coverage goal, it is assumed that approximately 5 m² of survey of the accessible corridor surfaces will be performed approximately every 12 meters (~40 linear feet)." See Technical Justification below.

Reason for Change

The reason for variance is to permit surveys of the utility corridor's accessible surface areas without disturbing ACM.

Technical Justification - NA

1. Health and Safety Concern

| | | |
|--|----------------------------------|--|
| Estimated Cost Impact | Estimated Schedule Impact | WBS Information |
| No impact on project costs. Reduced disposal cost to Navy. | None | <input type="checkbox"/> WBS Code Opened to Capture Cost |
| | | Task Title: |
| | | WBS Code: |

Applicable Document(s)

Final Task Specific Plan Addendum, Gun Mole Pier Area Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California June 2012

| | |
|---|---|
| <p>PMO Disposition of Work Variance</p> <p><input type="checkbox"/> Monitor; No notice to Navy Review by _____ (Date)</p> <p><input checked="" type="checkbox"/> E-Mail Notification to Navy</p> <p><input type="checkbox"/> Notice of Potential Impact (NOPI)</p> <p><input type="checkbox"/> Request for Additional Funds (RAF)</p> <p><input type="checkbox"/> Other (Please Comment)</p> | <p>Type of Change: _____</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Additional Comments</p> <p>Prepared by Raymond Schul, PRSO 10/03/2012</p> </div> |
|---|---|

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|---|--------------------------------|---|
| <p>Approvals</p> <p>Project Manager _____</p> <p>PMO Contracts Manager _____</p> | <p>Ulrika T. Messer</p> | <p><small>Digitally signed by Ulrika T. Messer DN: cn=Ulrika T. Messer, o=1215455, Federal, email=ulrika.messer@shawgrp.com, c=US Date: 2012.10.04 11:36:27 -0700</small></p> <p>Date: _____</p> <p>Date: _____</p> |
|---|--------------------------------|---|

FIELD WORK VARIANCE

| | | |
|--|--|--|
| Project Name: <u>HPNS CTO 6 FINAL TSP Addendum SP Area Scoping Survey</u> | | DCN: <u>SHAW-8822-0006-0148</u> |
| Project Number: <u>136250</u> | Project Manager: <u>Ulrika Messer</u> | WV #: <u>6</u> |
| Contract Number: <u>N62473-08-D-8822</u> | SWDIV RPM: <u>Chris Yantos</u> | Date: <u>10/3/2012</u> |
| CTO Number: <u>CTO 0006</u> | SWDIV CS: <u>Cynthia Mafara</u> | |
| Item: <u>Modification of Practice</u> | | Primary WBS: <u>136250</u> |

Description *(Include recommended action to resolve changed condition and action taken to date)*

TSP Section 3.3 Utility Corridors- Requires surveys of 25% of the corridors interior surface areas. This cannot be performed for utility corridor SEC01 because of health and safety concerns due to presence of deteriorated asbestos lagged piping. Access to interior surfaces is prevented until asbestos material is abated, which can only be conducted by a licensed asbestos abatement contractor.

ACTION: 1) Revise text, 1st paragraph, 3rd sentence from "As a result, an investigative survey with a coverage goal of 25 percent of the total interior surface area of the corridors shall be performed. To achieve this coverage goal, it is assumed that approximately 5 m² of survey of accessible corridor surfaces will be performed every 6 meters (20 linear feet)." to read; " "As a result, an investigative survey with a coverage goal of 25 percent of the total accessible exterior surface area shall be performed. To achieve this coverage goal, it is assumed that approximately 5 m² of survey of the accessible corridor surfaces will be performed approximately every 12 meters (~40 linear feet).""

See Technical Justification below.

Reason for Change

The reason for variance is to permit surveys of the utility corridor's accessible surface areas without disturbing ACM.

Technical Justification - NA

Health and Safety Concern

| | | |
|--|---|--|
| <p>Estimated Cost Impact</p> <p>No impact on project cost.</p> <p>Reduced disposal cost to Navy</p> | <p>Estimated Schedule Impact</p> <p>None</p> | <p>WBS Information</p> <p style="text-align: center;"><input type="checkbox"/> WBS Code Opened to Capture Cost</p> <p>Task Title:</p> <p>WBS Code:</p> |
|--|---|--|

Applicable Document(s)

Final Task Specific Plan Addendum, Gun Mole Pier Area Scoping Survey, Hunters Point Naval Shipyard, San Francisco, California June 2012

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| <p>PMO Disposition of Work Variance</p> <p><input type="checkbox"/> Monitor; No notice to Navy Review by _____ (Date)</p> <p><input checked="" type="checkbox"/> E-Mail Notification to Navy</p> <p><input type="checkbox"/> Notice of Potential Impact (NOPI)</p> <p><input type="checkbox"/> Request for Additional Funds (RAF)</p> <p><input type="checkbox"/> Other (Please Comment)</p> | <p>Type of Change: _____</p> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p>Additional Comments</p> <p>Prepared by Raymond Schul, PRSO 10/03/2012</p> </div> |
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| | |
|---|---|
| <p>Approvals</p> <p>Project Manager <u>Ulrika I. Messer</u></p> <p>PMO Contracts Manager _____</p> | <div style="text-align: right;"> <p><small>Digitally signed by Ulrika I. Messer DN: cn=Ulrika T. Messer, o=1215455, Federal, email=ulrika.messer@shawgrp.com, c=US Date: 2012.10.04 11:37:13 -0700</small></p> <p>Date: _____</p> <p>Date: _____</p> </div> |
|---|---|

Appendix E

Completion Inspection Checklists

~~Pre~~-FINAL INSPECTION
(This list may be addendum.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 Storm Drain and Sanitary Sewer Removal.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: November 20, 2012

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|-----------------|-------------|--------------|
| Doug DeLano | CHMM | NAVY BRK |
| Peter Strogan | Proj. Engr. | ROICC |
| Mark Vennemeyer | QC Manager | Shaw |
| Ren Moore | Supervisor | Shaw |
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- The contractor hereby acknowledges the construction deficiencies listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such deficiencies to meet contract requirements, at no additional cost to the Government, on or before 11/21/12. This is not to be construed as a waiver of the warranty provisions of the contract.
- Correction of the deficiencies listed below:

a. Construction Deficiencies:

| # | Description | Location | Trade | Date completed \ Initials |
|---|---|-------------------------|-----------|---|
| 1 | Removal of Rental Fence around Project Site | Parcel D1 | Construct | 11/20/12 <i>ML</i> |
| 2 | Remove half-buried cable from area | Berth 16 | Construct | 11/15/12 <i>ML</i> |
| 3 | Paint bright color on any rebar protrusions | South Pier | Construct | N/A – rebar protrusions removed <i>ML</i> |
| 4 | Set fence posts and provide rope barrier around “sandy” area | Corner of Berth 14 & 15 | Construct | 11/14/12 <i>ML</i> |
| 5 | Cut/remove metal strap protruding from ground | Corner of Berth 14 & 15 | Construct | 11/14/12 <i>ML</i> |
| 6 | Remove tires (approx 4 total) located in WA-24 and stage in Parcel G pile | WA-24 | Construct | 11/14/12 <i>ML</i> |
| 7 | Identify and properly manage 55-gal drum located in WA-24 | WA-24 | Construct | 11/14/12 <i>ML</i> |

(This list may be addendum.)

None

Finalize map of waste piles (e.g., debris, concrete, wood, etc.). Map supplied to Navy, as requested.

Rented fence panels to be picked up by ~~sur~~ rental contractor on week of 11/26/12
Cones left behind to indicate obstructions/voids (vaults, wells, trenches, etc.)

RPM

CSO Representative

Pre-FINAL INSPECTION

(This list may be added.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 South Pier.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: October 2, 2012

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|------------------|------------------------------------|--------------|
| Mark Vennemeyer | CQC Manager | Shaw |
| Peter Stroganoff | Project Engineer | Navy ROICC |
| Owen Chao | Project Engineer | Shaw |
| Jim Click | Construction Manager | Shaw |
| Andy Uehisa | Construction Management Technician | Navy ROICC |
| Doug DeLong | CSO | Navy BRAC |
| | | |
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1. The contractor hereby acknowledges the construction items listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such items to meet contract requirements, at no additional cost to the Government, on or before close of project. This is not to be construed as a waiver of the warranty provisions of the contract.
2. Correction of the project items listed below:

a. Construction Items:

| # | Description | Location | Trade | Date completed \ Initials |
|---|--|------------|-------------------------|------------------------------|
| 1 | Placement of crushed asphalt on South Pier. | South Pier | Construction | |
| 2 | Cover and marking of opened manholes, vaults, and other fall hazards | South Pier | H&S / Construction | |
| 3 | Down post and removal of rad postings/signage | South Pier | Radiological Operations | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

Pre-FINAL INSPECTION

(This list may be addended.)

b. Design Deficiencies:

Not applicable

c. General Comments:

Utility corridor (SEC-01) will still be accessible after placement of crushed asphalt. Asphalt layer will NOT cover the utility doors or covers.

BRAC CSO requested a fence or other security barrier be put in place at start of South Pier to prevent unauthorized access to potentially dangerous areas (e.g., end of pier). Fence should be equipped with truck gate for South Pier and Gun Mole Pier. This option will need to be discussed with the NAVY RPM and Shaw PM. Shaw will be looking at preliminary pricing to address the matter further.

[illegible]

Pre-FINAL INSPECTION

(This list may be addended.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 Storm Drain and Sanitary Sewer Removal.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: October 23, 2012

AREAS OF INSPECTION: Former Building 383

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|------------------|----------------------|--------------|
| Doug Delong | CHMM | BRAC-CSO |
| Peter Stroganoff | Project Engineer | ROICC |
| Andy Uehisa | CMT | ROICC |
| Owen Chao | Project Engineer | Shaw |
| Takeshi Ibuki | RCS | Shaw |
| Jim Click | Construction Manager | Shaw |
| Mark Vennemeyer | QC Manager | Shaw |
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1. The contractor hereby acknowledges the construction items listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such items to meet contract requirements, at no additional cost to the Government, on or before close of project. This is not to be construed as a waiver of the warranty provisions of the contract.

2. Correction of the project items listed below:

a. Construction Items:

| # | Description | Location | Trade | Date completed \ Initials |
|---|--|------------------|--------------|------------------------------|
| 1 | Leveling of area and crushed asphalt layer | 383 footprint | Construction | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

Pre-FINAL INSPECTION

(This list may be addended.)

b. Design Deficiencies:

Not applicable

c. General Comments:

Final leveling and coverage of area with crushed asphalt to be completed as part of GMP restoration.

Signed: _____
Contractor Representative

ROICC/OICC Representative

Navy RPM

Agency Representative

Pre-FINAL INSPECTION

(This list may be addended.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 Storm Drain and Sanitary Sewer Removal.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: October 23, 2012

AREAS OF INSPECTION: Former Building 274

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|------------------|----------------------|--------------|
| Doug Delong | CHMM | BRAC-CSO |
| Peter Stroganoff | Project Engineer | ROICC |
| Andy Uehisa | CMT | ROICC |
| Owen Chao | Project Engineer | Shaw |
| Takeshi Ibuki | RCS | Shaw |
| Jim Click | Construction Manager | Shaw |
| Mark Vennemeyer | QC Manager | Shaw |
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1. The contractor hereby acknowledges the construction items listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such items to meet contract requirements, at no additional cost to the Government, on or before close of project. This is not to be construed as a waiver of the warranty provisions of the contract.

2. Correction of the project items listed below:

a. Construction Items:

| # | Description | Location | Trade | Date completed \ Initials |
|---|--|-------------------|-----------------|------------------------------|
| 1 | Signage to be put in place to warn of "Open Trenches" | Bldg 274 doorways | Health & Safety | |
| 2 | Rope barrier put at all entry ways to indicate restricted access | Bldg 274 doorway | Construction | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

Pre-FINAL INSPECTION

(This list may be addended.)

b. Design Deficiencies:

Not applicable

c. General Comments:

Trenches inside of building will remain open. Shaw will not fill, nor cover the openings.

Signed: _____
Contractor Representative

ROICC/OICC Representative

Navy RPM

Agency Representative

Pre-FINAL INSPECTION

(This list may be addended.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 Storm Drain and Sanitary Sewer Removal.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: October 23, 2012

AREAS OF INSPECTION: Former Building 313/313A/322 Areas

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|------------------|----------------------|--------------|
| Doug Delong | CHMM | BRAC-CSO |
| Peter Stroganoff | Project Engineer | ROICC |
| Andy Uehisa | CMT | ROICC |
| Owen Chao | Project Engineer | Shaw |
| Takeshi Ibuki | RCS | Shaw |
| Jim Click | Construction Manager | Shaw |
| Mark Vennemeyer | QC Manager | Shaw |
| | | |
| | | |
| | | |

1. The contractor hereby acknowledges the construction items listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such items to meet contract requirements, at no additional cost to the Government, on or before close of project. This is not to be construed as a waiver of the warranty provisions of the contract.

2. Correction of the project items listed below:

a. Construction Items:

| # | Description | Location | Trade | Date completed \ Initials |
|---|---|----------|--------------|------------------------------|
| 1 | Final restoration (e.g., spot leveling, smoothing) of area. | WA-24 | Construction | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |

Pre-FINAL INSPECTION

(This list may be addended.)

b. Design Deficiencies:

Not applicable

c. General Comments:

A list of materials to remain on-site (e.g., concrete to be handled by base-wide contractor, drums of waste Non-PCB transformer oil to be managed by base-wide contractor, general debris pile, sheds, etc.) to be supplied to Navy.

Shallow excavation (<1 ft) on West side of WA-24 was pre-existing and is out of scope for Shaw to fill.

Signed: _____
Contractor Representative

ROICC/OICC Representative

Navy RPM

Agency Representative

[illegible]

Pre-FINAL INSPECTION

(This list may be addendum.)

CONTRACT # & TITLE: N62473-08-D-8832; CTO-006; Parcel D-1 Storm Drain and Sanitary Sewer Removal.

CONTRACTOR: Shaw E & I, Inc.

DATE OF INSPECTION: November 13, 2012

INSPECTION PARTY

| NAME | TITLE | REPRESENTING |
|------------------|----------------------------------|--------------|
| Doug Delong | Environmental Compliance Manager | BRAC-PMO-W |
| Peter Stroganoff | Project Engineer | ROICC |
| Owen Chao | Project Engineer | Shaw |
| Jim Click | Construction Manager | Shaw |
| Ulrika Messer | Project Manager | Shaw |
| Takeshi Ibuki | Radiological Supervisor | Shaw |
| Mark Vennemeyer | Project QC Manager | Shaw |
| | | |
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| | | |

1. The contractor hereby acknowledges the construction deficiencies listed below; conditions of workmanship and/or materials that do not comply with the contract requirements, and agrees to correct such deficiencies to meet contract requirements, at no additional cost to the Government, on or before close of project. This is not to be construed as a waiver of the warranty provisions of the contract.
2. Correction of the deficiencies listed below:

a. Construction Deficiencies:

| # | Description | Location | Trade | Date completed \ Initials |
|---|---|-------------------------|-----------|---------------------------------|
| 1 | Removal of Rental Fence around Project Site | Parcel D1 | Construct | |
| 2 | Remove half-buried cable from area | Berth 16 | Construct | |
| 3 | Paint bright color on any rebar protrusions | South Pier | Construct | N/A – rebar protrusions removed |
| 4 | Set fence posts and provide rope barrier around “sandy” area | Corner of Berth 14 & 15 | Construct | 11/14/12 |
| 5 | Cut/remove metal strap protruding from ground | Corner of Berth 14 & 15 | Construct | 11/14/12 |
| 6 | Remove tires (approx 4 total) located in WA-24 and stage in Parcel G pile | WA-24 | Construct | 11/14/12 |
| 7 | Identify and properly manage 55-gal drum located in WA-24 | WA-24 | Construct | 11/14/12 |

Pre-FINAL INSPECTION

(This list may be addendum.)

b. Design Deficiencies:

c. General Comments:

Finalize map of waste piles (e.g., debris, concrete, wood, etc.)

Pending approval of Memorandum of Understanding (MoU), fence will be put in place in select areas to secure the South Pier and the Gun Mole Pier.

[illegible]

Appendix F

Photographic Log

PHOTOGRAPH LOG



Photograph 1: Air Monitoring Station near South Pier, Facing South—October 7, 2010



Photograph 2: Pre-Excavation South Pier, Facing Southeast—October 15, 2010

PHOTOGRAPH LOG



Photograph 3: Pre-Excavation Manseau Street, Facing Northeast—October 15, 2010



Photograph 4: Pre-Excavation Gun Mole Pier, Facing Southeast—October 15, 2010

PHOTOGRAPH LOG



Photograph 5: Excavation at Trench Survey Unit 273—October 8, 2010

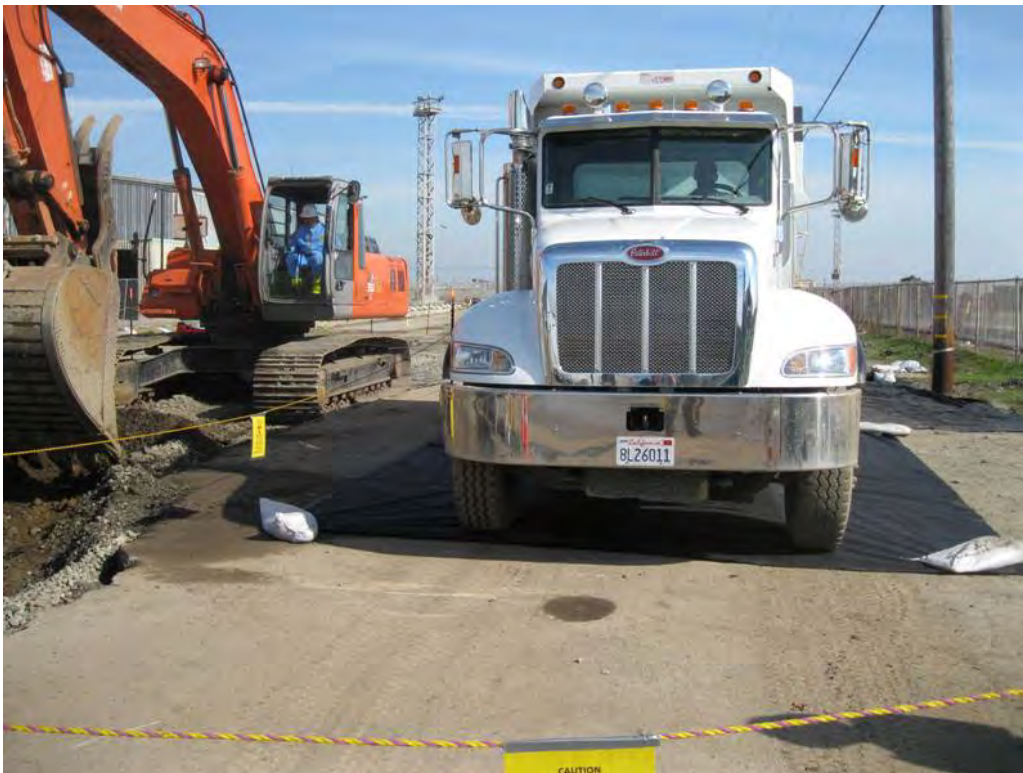


Photograph 6: Removing MH726 at South Pier—October 19, 2010

PHOTOGRAPH LOG



Photograph 7: Removing MH723 at South Pier—October 19, 2010



Photograph 8: Start of excavation at southeast end of Manseau St, facing northeast—November 3, 2010

PHOTOGRAPH LOG



Photograph 9: Scanning out dump truck—November 3, 2010



Photograph 10: Excavated trench segment 06-D24-00-5B, facing east—November 29, 2010

PHOTOGRAPH LOG



Photograph 11: Excavation along trench segment 06-D28-32-1F, facing southeast—December 3, 2010



Photograph 12: Lead abatement at Building 311—December 3, 2010

PHOTOGRAPH LOG



Photograph 13: Taking down the walls inside Building 274—December 7, 2010



Photograph 14: Excavation along trench segment 06-D28-32-1H, facing east—December 7, 2010

PHOTOGRAPH LOG



Photograph 15: Overview of trenching operation at Trench Survey Unit 262, facing northwest—December 7, 2010



Photograph 16: Building 380 demolition, facing southeast—December 8, 2010

PHOTOGRAPH LOG



Photograph 17: Removing tank from Building 375, facing east—December 8, 2010



Photograph 18: Pre-demolition setup at Building 278, facing north—December 8, 2010

PHOTOGRAPH LOG



Photograph 19: Building 375 demolition—December 9, 2010



Photograph 20: Asphalt removal at South Pier, facing east—December 14, 2010

PHOTOGRAPH LOG



Photograph 21: Dust control during Building 370 demolition—December 15, 2010



Photograph 22: Building 383 demolition, facing west—December 21, 2010

PHOTOGRAPH LOG



Photograph 23: Rail removal at end of South Pier—December 21, 2010



Photograph 24: Wooden rail ties removal at end of South Pier—December 15, 2010

PHOTOGRAPH LOG



Photograph 25: Excavation of trench segment 06-D30-00-3A—January 4, 2011



Photograph 26: Placing low-level radioactive waste (LLRW) into bin—January 4, 2011

PHOTOGRAPH LOG



Photograph 27: Breaking Building 383 foundation, facing northwest—January 11, 2011



Photograph 28: Breaking Building 311 foundation and removing sewer pipes—January 17, 2011

PHOTOGRAPH LOG



Photograph 29: Remains of Building 311 foundation with sewer pipe removed—January 24, 2011



Photograph 30: South Pier asphalt/rails/ties stockpiles at Berth 14, facing south—January 24, 2011

PHOTOGRAPH LOG



Photograph 31: Asphalt removal at Gun Mole Pier Survey Unit 20, facing north—January 27, 2011



Photograph 32: Pipe removal along trench segment 06-D28-32-1L, facing west—January 27, 2011

PHOTOGRAPH LOG



Photograph 33: Pipe removal along trench segment 06-D28-32-1L—January 27, 2011



Photograph 34: Asphalt removal in Gun Mole Pier Survey Unit 08, facing west—February 2, 2011

PHOTOGRAPH LOG



Photograph 35: Concrete breaking along trench segment 06-D29-00-11C, facing west—February 2, 2011



Photograph 36: Broken up concrete pad along trench segment 06-D29-68-1B, facing southwest—February 3, 2011

PHOTOGRAPH LOG



Photograph 37: Removing missile launch pad structure underneath Gun Mole Pier crane—February 3, 2011



Photograph 38: Breaking up concrete launch pad on top of trench segment 06-D29-00-6D—February 4, 2011

PHOTOGRAPH LOG



Photograph 39: Gamma walkover survey at South Pier—February 16, 2011



Photograph 40: Asphalt removal at Gun Mole Pier Survey Unit 13, facing north—February 16, 2011

PHOTOGRAPH LOG



Photograph 41: Excavation along trench segment 06-D24-35-2A in Work Area (WA) 24—February 23, 2011



Photograph 42: Excavation along trench segment 06-D29-00-14C in WA 29—March 1, 2011

PHOTOGRAPH LOG



Photograph 43: Removing MH780 in WA 29—March 1, 2011

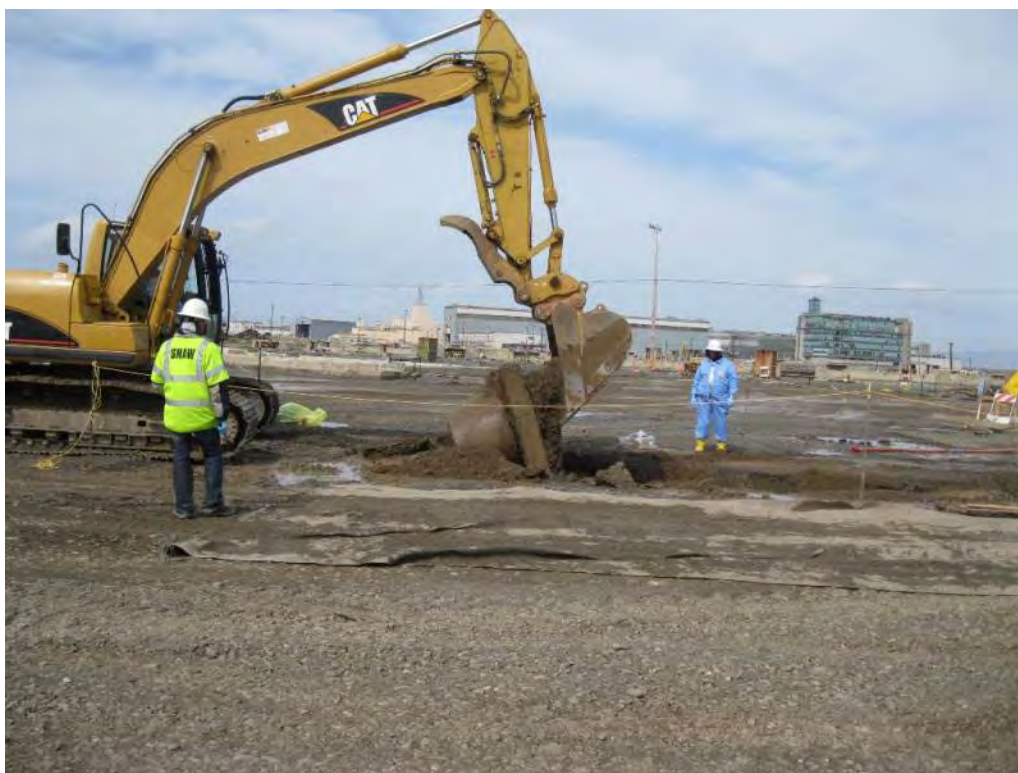


Photograph 44: Electronic waste stockpile from various Gun Mole Pier buildings—March 3, 2011

PHOTOGRAPH LOG



Photograph 45: Excavation along Trench Survey Unit 268—March 14, 2011



Photograph 46: Removing MH759 in WA 28—March 16, 2011

PHOTOGRAPH LOG



Photograph 47: Excavation along trench segment 06-D28-32-2G in WA 28—March 21, 2011



Photograph 48: Excavation along trench segment 06-D28-32-2E in WA 28—March 22, 2011

PHOTOGRAPH LOG



Photograph 49: Gamma scanning along trench segment 06-D28-32-1J in WA 28—April 1, 2011



Photograph 50: Scanning MH788 near Building 381—April 1, 2011

PHOTOGRAPH LOG



Photograph 51: Demolishing shed underneath southwest footing of Gun Mole Pier crane—April 11, 2011



Photograph 52: Asphalt removal underneath southwest footing of Gun Mole Pier crane—April 12, 2011

PHOTOGRAPH LOG



Photograph 53: Installing silt curtain at northeast corner of Gun Mole Pier—April 13, 2011



Photograph 54: Soil remediation at WA 24—April 28, 2011

PHOTOGRAPH LOG



Photograph 55: Gamma scanning along Manseau Street, WA 24—September 15, 2011

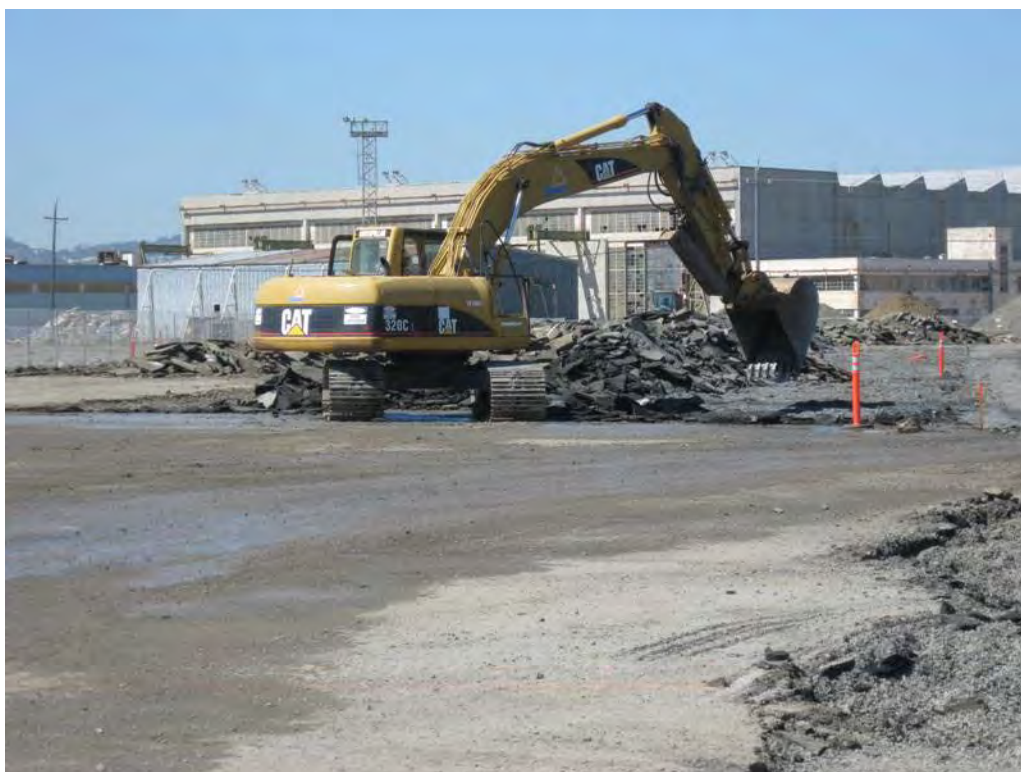


Photograph 56: Excavation along trench segment 06-D28-32-2E in WA 28—September 19, 2011

PHOTOGRAPH LOG



Photograph 57: Excavation around MH747 in WA 28—September 19, 2011



Photograph 58: Asphalt removal in Gun Mole Pier Survey Unit 69—September 20, 2011

PHOTOGRAPH LOG



Photograph 59: Radiological scanning of a manhole in WA 28—September 26, 2011



Photograph 60: Abandoning well PA50MW07A by over-excavation—September 26, 2011

PHOTOGRAPH LOG



Photograph 61: Cutting rails in WA 28, with fire watch—September 29, 2011



Photograph 62: Removing rails in former RSY2 area, WA 28—October 5, 2011

PHOTOGRAPH LOG



Photograph 63: Backfilling at Trench Survey Unit 273, WA 24—October 6, 2011



Photograph 64: Loading approved backfill into dump truck—October 7, 2011

PHOTOGRAPH LOG



Photograph 65: Backfilling along Manseau Street, WA 24—October 10, 2011



Photograph 66: Backfilling/compacting along Trench Survey Unit 268 in WA 28—October 17, 2011

PHOTOGRAPH LOG



Photograph 67: Gamma scanning along Trench Survey Unit 279—October 18, 2011



Photograph 68: Filling bin with LLRW—November 11, 2011

PHOTOGRAPH LOG



Photograph 69: Clearing debris from South Pier Survey Unit 14—November 23, 2011



Photograph 70: Soil remediation underneath Gun Mole Pier crane—December 13, 2011

PHOTOGRAPH LOG



Photograph 71: Grading along Manseau Street for swale installation—December 20, 2011



Photograph 72: Installing geotextile and drain rock on southwest end of swale—December 22, 2011

PHOTOGRAPH LOG



Photograph 73: Installing geotextile and drain rock along Manseau Street—December 28, 2011



Photograph 74: Pneumatic plug used to plug outfall along Berth 15 during tie-in of swale catch basin to MH749—December 28, 2011

PHOTOGRAPH LOG



Photograph 75: Catch basin installed at northeast end of swale, near MH749—December 29, 2011



Photograph 76: View of finished swale along Manseau Street, facing southwest—January 3, 2012

PHOTOGRAPH LOG



Photograph 77: Refilling generator for air monitor to north of South Pier—January 3, 2012



Photograph 78: Soil remediation in WA 29—January 9, 2012

PHOTOGRAPH LOG



Photograph 79: Asphalt crushing operation near Berth 14—January 19, 2012



Photograph 8081: Asphalt crushing operation at WA 25, facing north—February 2, 2012

PHOTOGRAPH LOG



Photograph 81: Asphalt crushing operation at WA 25, facing south—February 6, 2012



Photograph 82: Asphalt stockpile at WA 25, facing west—February 6, 2012

PHOTOGRAPH LOG



Photograph 83: Asphalt crushing operation at WA 25, facing east—February 10, 2012

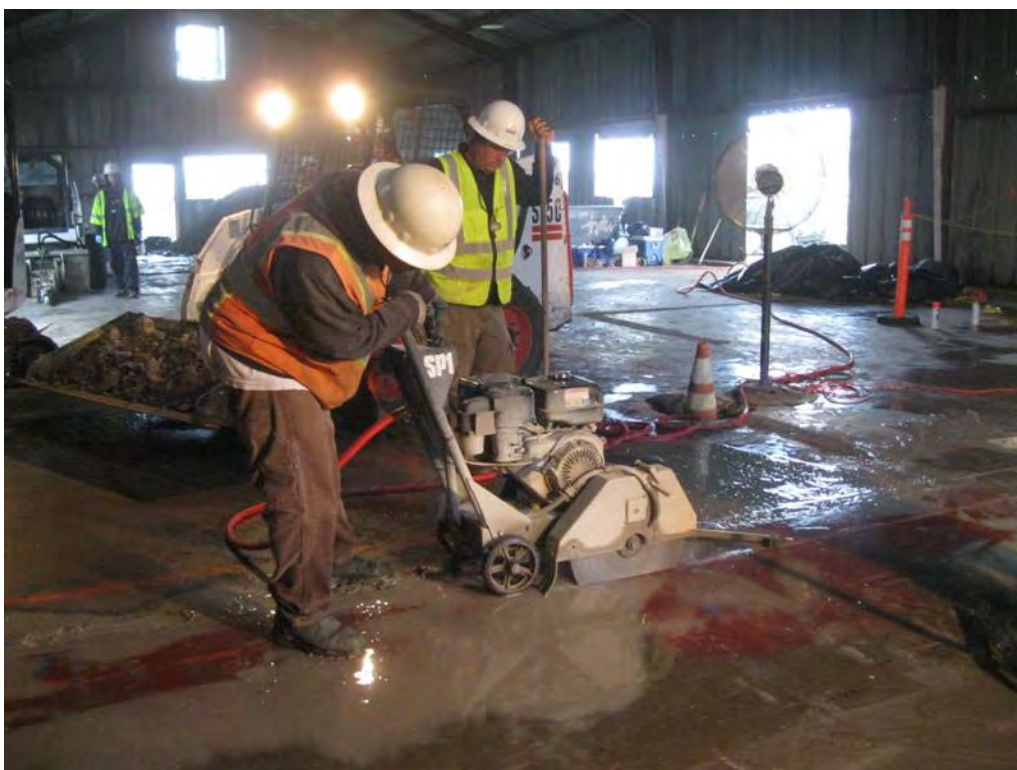


Photograph 84: Saw-cutting concrete inside Building 274—March 12, 2012

PHOTOGRAPH LOG



Photograph 85: Excavating sewer pipe inside Building 274—March 15, 2012



Photograph 86: Saw-cutting concrete inside Building 274—March 15, 2012

PHOTOGRAPH LOG



Photograph 87: Trenching inside Building 274—March 20, 2012



Photograph 88: Cleaning and preparing concrete surface (GV03 near former Building 375) for radiological scanning—May 7, 2012

PHOTOGRAPH LOG



Photograph 89: Removing trench plates along GEC02 in WA 29—May 7, 2012



Photograph 90: Breaking concrete pad at Gun Mole Pier—May 22, 2012

PHOTOGRAPH LOG



Photograph 91: Breaking concrete pad (GCP02) at Gun Mole Pier—May 22, 2012



Photograph 92: Breaking concrete pad (GCP02) with dust control—May 22, 2012

PHOTOGRAPH LOG



Photograph 93: Spreading out concrete pieces for radiological survey—May 24, 2012



Photograph 94: Removing concrete slab from former Building 385—May 24, 2012

PHOTOGRAPH LOG



Photograph 95: Clearing concrete debris near GCP17—May 24, 2012



Photograph 96: Breaking concrete pad GCP14 in WA 28—May 24, 2012

PHOTOGRAPH LOG



Photograph 97: Excavating around former Building 380, facing northeast—June 1, 2012



Photograph 98: Collecting samples along northwest corner of former Building 384—June 1, 2012

PHOTOGRAPH LOG



Photograph 99: Sizing rails (from South Pier) for radiological scanning—June 4, 2012



Photograph 100: Scanning removed concrete at Gun Mole Pier—June 13, 2012

PHOTOGRAPH LOG



Photograph 101: Excavating Survey Unit 76 in Gun Mole Pier—June 21, 2012

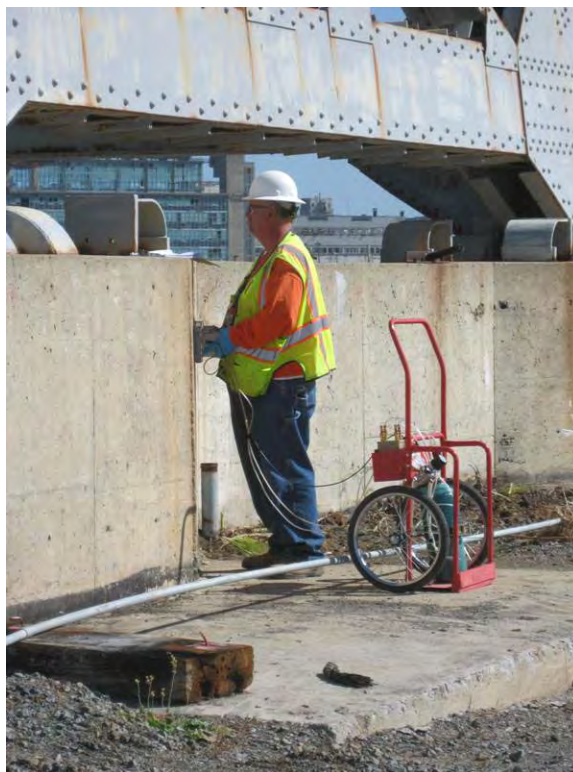


Photograph 102: Gamma walkover survey in footprint of former Building 377—June 21, 2012

PHOTOGRAPH LOG



Photograph 103: Performing gamma walkover survey at Survey Unit 76 at Gun Mole Pier—June 26, 2012



Photograph 104: Performing radiological survey on Gun Mole Pier crane footing—July 3, 2012

PHOTOGRAPH LOG



Photograph 105: Performing radiological survey on utility hood at South Pier—July 11, 2012



Photograph 106: Cleaning/preparing concrete surface for radiological survey at South Pier—July 17, 2012

PHOTOGRAPH LOG



Photograph 107: Collecting samples for asbestos analysis from South Pier utility hood—August 4, 2012



Photograph 108: Performing radiological survey on former Building 311 foundation, South Pier—August 13, 2012

PHOTOGRAPH LOG



Photograph 109: Scanned and released concrete stockpile in Parcel G—August 7, 2012



Photograph 110: Hauling stockpiled soils from Survey Unit 76 to Basewide Radiological Contractor's RSY—August 8, 2012

PHOTOGRAPH LOG



Photograph 111: Hauling out scanned and radiologically released scrap metal—August 22, 2012



Photograph 112: Gamma walkover survey on South Pier Survey Unit 14—August 22, 2012

PHOTOGRAPH LOG



Photograph 113: Backfilling Trench Survey Unit 265 in WA 24—August 22, 2012



Photograph 114: Backfilling Trench Survey Unit 265 in WA 24—August 22, 2012

PHOTOGRAPH LOG



Photograph 115: Dust Control—August 28, 2012



Photograph 116: Backfilling around former Building 380—August 28, 2012

PHOTOGRAPH LOG



Photograph 117: Backfilling around former Building 380—August 28, 2012



Photograph 118: Gamma walkover survey in WA 28—September 5, 2012

PHOTOGRAPH LOG



Photograph 119: Gamma walkover survey on GCP01 in WA 29—September 5, 2012



Photograph 120: Hauling scanned and release concrete debris to stockpile area in WA 24—September 5, 2012

PHOTOGRAPH LOG

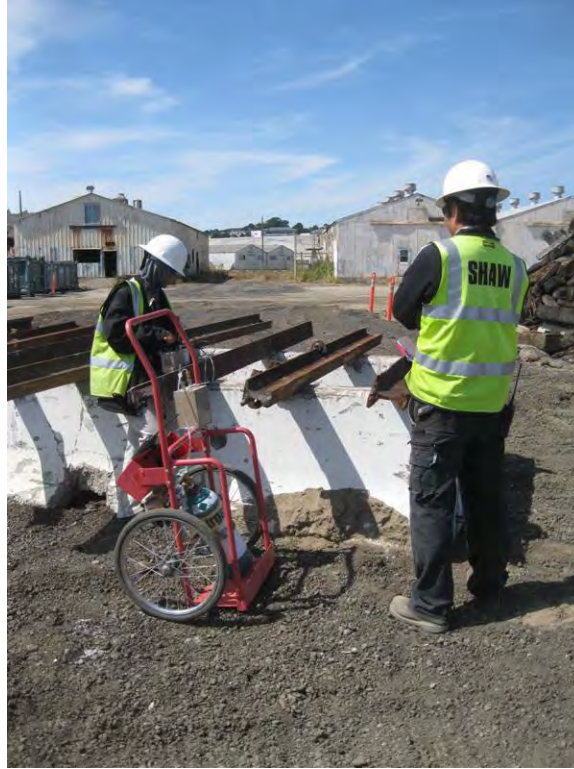


Photograph 121: Gamma walk survey in WA 28—September 6, 2012



Photograph 122: Hauling scanned and radiologically released scrap metal to stockpile area in WA 24—September 11, 2012

PHOTOGRAPH LOG



Photograph 123: Scanning rails (from South Pier) near Berth 14—September 13, 2012



Photograph 124: Scanning rails (from South Pier) near Berth 14—September 18, 2012

PHOTOGRAPH LOG



**Photograph 125: Placing rails (from Gun Mole Pier) for radiological scanning in WA 25—
September 18, 2012**



Photograph 126: Removing lids from SEC01 to collect samples—September 24, 2012

PHOTOGRAPH LOG



Photograph 127: Scanning rails (from Gun Mole Pier) in WA 25—September 26, 2012



Photograph 128: Stockpiling scanned rails at WA 25—September 27, 2012

PHOTOGRAPH LOG



Photograph 129: Loading out LLRW bins—October 1, 2012



Photograph 130: Consolidating asphalt piles at Berth 14—October 1, 2012

PHOTOGRAPH LOG



Photograph 131: Asphalt crushing at Berth 14—October 8, 2012



Photograph 132: Gamma walkover survey at Gun Mole Pier—October 15, 2012

PHOTOGRAPH LOG



Photograph 133: Radiological scanning at South Pier (SEC01)—October 15, 2012



Photograph 134: Asphalt crushing operation at WA 25—October 16, 2012

PHOTOGRAPH LOG



Photograph 135: Loading out scanned and radiologically released metal scrap pile at Berth 14—October 18, 2012



Photograph 136: Asphalt crushing operation at WA 25—October 18, 2012

PHOTOGRAPH LOG



Photograph 137: Loading crushed asphalt for backfill at South Pier—October 23, 2012



Photograph 138: Placing crushed asphalt at South Pier, facing south—October 23, 2012

PHOTOGRAPH LOG



Photograph 139: Placing crushed asphalt at Gun Mole Pier, facing west—October 24, 2012



Photograph 140: Placing crushed asphalt at Gun Mole Pier, facing east—October 30, 2012

PHOTOGRAPH LOG



Photograph 141: Compacting asphalt at Gun Mole Pier—November 5, 2012



Photograph 142: Placing and compacting asphalt at Gun Mole Pier—November 12, 2012

PHOTOGRAPH LOG



Photograph 143: Remaining South Pier wood ties stockpile at Berth 14—November 15, 2012



Photograph 144: Remaining Gun Mole Pier wood ties stockpile at WA 25—November 15, 2012

PHOTOGRAPH LOG



Photograph 145: South Pier, facing southeast—November 15, 2012



Photograph 146: South Pier, facing west—November 15, 2012

PHOTOGRAPH LOG



Photograph 147: Gun Mole Pier, facing northwest—November 15, 2012



Photograph 148: Gun Mole Pier, facing southeast—November 15, 2012

Appendix G
Data Validation Packages
(provided on electronic copy only)

VALIDATA

Chemical Services, Inc.

4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1C080460
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-003-010 | F1C080460-001 | Soil | X |
| 06-PD1-SP-003-014 | F1C080460-002 | Soil | X |
| 06-PD1-SP-004-003 | F1C080460-003 | Soil | X |
| 06-PD1-SP-004-009 | F1C080460-004 | Soil | X |
| 06-PD1-SP-006-002 | F1C080460-007 | Soil | X |
| 06-PD1-SP-006-008 | F1C080460-008 | Soil | X |
| 06-PD1-SP-007-006 | F1C080460-009 | Soil | X |
| 06-PD1-SP-007-017 | F1C080460-010 | Soil | X |
| 06-PD1-SP-001-006 | F1C080460-011 | Soil | X |
| 06-PD1-SP-001-008 | F1C080460-012 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C080460 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1C080000-286B for the following analyte:

| <u>Analyte</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|-----------------|-----------------------|---------------|----------------|
| Total Strontium | 0.151 pCi/g | 0.102 pCi/g | 2.95 |

All associated sample results for Total Strontium were non-detected; therefore, no data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-003-010 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1C080460

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

VALIDATA

Chemical Services, Inc.

4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1C210453
SAMPLING DATE(S): March 04, 2011 - March 05, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-017-011 | F1C210453-016 | Soil | X |
| 06-PD1-GMP-017-018 | F1C210453-017 | Soil | X |
| 06-PD1-GMP-019-003 | F1C210453-018 | Soil | X |
| 06-PD1-GMP-019-012 | F1C210453-019 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C210453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-001-009 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1C210453

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

VALIDATA

Chemical Services, Inc.

4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1C210453
SAMPLING DATE(S): February 23, 2011 - February 25, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-002-010 | F1C210453-004 | Soil | X |
| 06-PD1-GMP-002-017 | F1C210453-005 | Soil | X |
| 06-PD1-GMP-006-006 | F1C210453-006 | Soil | X |
| 06-PD1-GMP-003-018 | F1C210453-007 | Soil | X |
| 06-PD1-GMP-004-005 | F1C210453-008 | Soil | X |
| 06-PD1-GMP-004-015 | F1C210453-009 | Soil | X |
| 06-PD1-GMP-005-007 | F1C210453-010 | Soil | X |
| 06-PD1-GMP-005-008 | F1C210453-011 | Soil | X |
| 06-PD1-GMP-006-002 | F1C210453-012 | Soil | X |
| 06-PD1-GMP-006-017 | F1C210453-013 | Soil | X |
| 06-PD1-GMP-007-005 | F1C210453-014 | Soil | X |
| 06-PD1-GMP-007-015 | F1C210453-015 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C210453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-002-010 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1C210453

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1C210460
SAMPLING DATES: February 15, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1T-263-002 | F1C210460-007 | Soil | X |
| 06-PD1T-263-003 | F1C210460-008 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C210460 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-D24-003-009 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1C300465
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-001-011 | F1C300465-003 | Soil | X |
| 06-PD1-SP-001-014 | F1C300465-004 | Soil | X |
| 06-PD1-SP-008-008 | F1C300465-007 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C300465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-008-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1C300465

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F1C300468
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-028-011 | F1C300468-004 | Soil | X |
| 06-PD1-GMP-028-016 | F1C300468-005 | Soil | X |
| 06-PD1-GMP-028-021 | F1C300468-006 | Soil | X |
| 06-PD1-GMP-029-001 | F1C300468-007 | Soil | X |
| 06-PD1-GMP-029-010 | F1C300468-008 | Soil | X |
| 06-PD1-GMP-029-021 | F1C300468-009 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1C300468 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-008-022 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1C300468

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1D070486
SAMPLING DATES: March 23, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1T-258-018 | F1D070486-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D070486 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1D070404-001 of SDG F1D070404. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F1D140499
SAMPLING DATE(S): March 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-027-002 | F1D140499-012 | Soil | X |
| 06-PD1-GMP-027-009 | F1D140499-013 | Soil | X |
| 06-PD1-GMP-027-012 | F1D140499-014 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D140499 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-027-002 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1D140499

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1D150474
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-003-016 | F1D150474-001 | Soil | X |
| 06-PD1-SP-003-017 | F1D150474-002 | Soil | X |
| 06-PD1-SP-004-011 | F1D150474-003 | Soil | X |
| 06-PD1-SP-004-018 | F1D150474-004 | Soil | X |
| 06-PD1-SP-008-004 | F1D150474-007 | Soil | X |
| 06-PD1-SP-008-010 | F1D150474-008 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D150474 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-263-001 of SDG F1D150457. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1D150474

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1D150477
SAMPLING DATES: February 15, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1T-263-001 | F1D150477-001 | Soil | X |
| 06-PD1T-263-016 | F1D150477-016 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D150477 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1D150477-001 of SDG F1D150477. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EML SR-03-RC Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Strontium-90)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1D210499
SAMPLING DATES: March 23, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Sr-90</u> |
|------------------------|---------------------|---------------|--------------|
| 06-PD1T-258-015 | F1D210499-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D210499 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EML SR-03-RC Modified for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1D210455-001 of SDG F1D210455. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Strontium-90 on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1D220533
SAMPLING DATE(S): March 31, 2011 – April 02, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-021-003 | F1D220533-016 | Soil | X |
| 06-PD1-GMP-021-008 | F1D220533-017 | Soil | X |
| 06-PD1-GMP-021-018 | F1D220533-018 | Soil | X |
| 06-PD1-GMP-022-011 | F1D220533-019 | Soil | X |
| 06-PD1-GMP-022-015 | F1D220533-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220533 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-021-003 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1D220533

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1D220537
SAMPLING DATE(S): March 31, 2011 – April 04, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-022-024 | F1D220537-001 | Soil | X |
| 06-PD1-GMP-023-007 | F1D220537-002 | Soil | X |
| 06-PD1-GMP-023-019 | F1D220537-003 | Soil | X |
| 06-PD1-GMP-023-020 | F1D220537-004 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220537 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-022-024 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1D220537

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1D220546
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-032-002 | F1D220546-004 | Soil | X |
| 06-PD1-GMP-032-011 | F1D220546-005 | Soil | X |
| 06-PD1-GMP-032-020 | F1D220546-006 | Soil | X |
| 06-PD1-GMP-033-007 | F1D220546-007 | Soil | X |
| 06-PD1-GMP-033-012 | F1D220546-008 | Soil | X |
| 06-PD1-GMP-033-020 | F1D220546-009 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220546 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-026-015 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1D220546

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F1D220552
SAMPLING DATE(S): April 06, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-061-004 | F1D220552-002 | Soil | X |
| 06-PD1-GMP-061-018 | F1D220552-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220552 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-060-010 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1D220552

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: August 31, 2012

SDG NUMBER: F1D220554
SAMPLING DATES: April 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-269-001 | F1D220554-001 | Soil | X |
| 06-PD1T-269-002 | F1D220554-002 | Soil | X |
| 06-PD1T-269-003 | F1D220554-003 | Soil | X |
| 06-PD1T-269-004 | F1D220554-004 | Soil | X |
| 06-PD1T-269-005 | F1D220554-005 | Soil | X |
| 06-PD1T-269-006 | F1D220554-006 | Soil | X |
| 06-PD1T-269-007 | F1D220554-007 | Soil | X |
| 06-PD1T-269-008 | F1D220554-008 | Soil | X |
| 06-PD1T-269-009 | F1D220554-009 | Soil | X |
| 06-PD1T-269-010 | F1D220554-010 | Soil | X |
| 06-PD1T-269-011 | F1D220554-011 | Soil | X |
| 06-PD1T-269-012 | F1D220554-012 | Soil | X |
| 06-PD1T-269-013 | F1D220554-013 | Soil | X |
| 06-PD1T-269-014 | F1D220554-014 | Soil | X |
| 06-PD1T-269-015 | F1D220554-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-269-016 | F1D220554-016 | Soil | X |
| 06-PD1T-269-017 | F1D220554-017 | Soil | X |
| 06-PD1T-269-018 | F1D220554-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220554 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches near secular equilibrium with Radon-222, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-269-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1D220558
SAMPLING DATES: April 12, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1T-269-001 | F1D220558-001 | Soil | X |
| 06-PD1T-269-017 | F1D220558-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1D220558 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1D220552-001 of SDG F1D220552. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1E090533
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-013-020 | F1E090533-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E090533 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1E090531-001 of SDG F1E090531. Both Strontium-90 results were non-detected; therefore, precision criterion was not evaluated. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E090533

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 11, 2012
SDG NUMBER: F1E100590
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-008-001 | F1E100590-001 | Soil | X |
| 06-PD1-GMP-008-003 | F1E100590-003 | Soil | X |
| 06-PD1-GMP-008-005 | F1E100590-005 | Soil | X |
| 06-PD1-GMP-008-006 | F1E100590-006 | Soil | X |
| 06-PD1-GMP-008-007 | F1E100590-007 | Soil | X |
| 06-PD1-GMP-008-008 | F1E100590-008 | Soil | X |
| 06-PD1-GMP-008-009 | F1E100590-009 | Soil | X |
| 06-PD1-GMP-008-010 | F1E100590-010 | Soil | X |
| 06-PD1-GMP-008-011 | F1E100590-011 | Soil | X |
| 06-PD1-GMP-008-012 | F1E100590-012 | Soil | X |
| 06-PD1-GMP-008-013 | F1E100590-013 | Soil | X |
| 06-PD1-GMP-008-014 | F1E100590-014 | Soil | X |
| 06-PD1-GMP-008-015 | F1E100590-015 | Soil | X |
| 06-PD1-GMP-008-016 | F1E100590-016 | Soil | X |
| 06-PD1-GMP-008-017 | F1E100590-017 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-008-018 | F1E100590-018 | Soil | X |
| 06-PD1-GMP-008-019 | F1E100590-019 | Soil | X |
| 06-PD1-GMP-008-020 | F1E100590-020 | Soil | X |
| 06-PD1-GMP-008-021 | F1E100590-021 | Soil | X |
| 06-PD1-GMP-008-022 | F1E100590-022 | Soil | X |
| 06-PD1-GMP-008-023 | F1E100590-023 | Soil | X |
| 06-PD1-GMP-008-024 | F1E100590-024 | Soil | X |
| 06-PD1-GMP-008-025 | F1E100590-025 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E100590 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1E110000-326B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.124 pCi/g | 0.0878 pCi/g | 2.81 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-008-001 | 2.90 | Pass |
| 06-PD1-GMP-008-003 | 2.41 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-008-005 | 3.48 | Pass |
| 06-PD1-GMP-008-006 | 1.94 | Fail |
| 06-PD1-GMP-008-007 | 3.68 | Pass |
| 06-PD1-GMP-008-008 | 3.63 | Pass |
| 06-PD1-GMP-008-009 | 2.74 | Pass |
| 06-PD1-GMP-008-010 | 3.06 | Pass |
| 06-PD1-GMP-008-011 | 4.23 | Pass |
| 06-PD1-GMP-008-012 | 2.41 | Fail |
| 06-PD1-GMP-008-013 | 3.64 | Pass |
| 06-PD1-GMP-008-014 | 3.16 | Pass |
| 06-PD1-GMP-008-015 | 4.67 | Pass |
| 06-PD1-GMP-008-016 | 3.66 | Pass |
| 06-PD1-GMP-008-017 | 2.63 | Pass |
| 06-PD1-GMP-008-018 | 3.42 | Pass |
| 06-PD1-GMP-008-019 | 3.54 | Pass |
| 06-PD1-GMP-008-020 | 2.86 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-008-001 and 06-PD1-GMP-008-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E100590

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-008-003 | F1E100590-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-008-006 | F1E100590-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-008-012 | F1E100590-003 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 22, 2012

SDG NUMBER: F1E100600
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-019-001 | F1E100600-001 | Soil | X |
| 06-PD1-GMP-019-002 | F1E100600-002 | Soil | X |
| 06-PD1-GMP-019-003 | F1E100600-003 | Soil | X |
| 06-PD1-GMP-019-004 | F1E100600-004 | Soil | X |
| 06-PD1-GMP-019-005 | F1E100600-005 | Soil | X |
| 06-PD1-GMP-019-006 | F1E100600-006 | Soil | X |
| 06-PD1-GMP-019-007 | F1E100600-007 | Soil | X |
| 06-PD1-GMP-019-008 | F1E100600-008 | Soil | X |
| 06-PD1-GMP-019-009 | F1E100600-009 | Soil | X |
| 06-PD1-GMP-019-010 | F1E100600-010 | Soil | X |
| 06-PD1-GMP-019-011 | F1E100600-011 | Soil | X |
| 06-PD1-GMP-019-012 | F1E100600-012 | Soil | X |
| 06-PD1-GMP-019-013 | F1E100600-013 | Soil | X |
| 06-PD1-GMP-019-014 | F1E100600-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-019-015 | F1E100600-015 | Soil | X |
| 06-PD1-GMP-019-016 | F1E100600-016 | Soil | X |
| 06-PD1-GMP-019-017 | F1E100600-017 | Soil | X |
| 06-PD1-GMP-019-018 | F1E100600-018 | Soil | X |
| 06-PD1-GMP-019-019 | F1E100600-019 | Soil | X |
| 06-PD1-GMP-019-020 | F1E100600-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E100600 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1E110000-327B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.141 pCi/g | 0.0717 pCi/g | 3.93 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-019-001 | 2.64 | Pass |
| 06-PD1-GMP-019-002 | 4.86 | Pass |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-019-003 | 3.18 | Pass |
| 06-PD1-GMP-019-004 | 2.52 | Fail |
| 06-PD1-GMP-019-005 | 2.78 | Pass |
| 06-PD1-GMP-019-006 | 2.93 | Pass |
| 06-PD1-GMP-019-007 | 2.66 | Pass |
| 06-PD1-GMP-019-008 | 2.18 | Fail |
| 06-PD1-GMP-019-009 | 2.71 | Pass |
| 06-PD1-GMP-019-010 | 3.61 | Pass |
| 06-PD1-GMP-019-011 | 3.21 | Pass |
| 06-PD1-GMP-019-012 | 3.66 | Pass |
| 06-PD1-GMP-019-013 | 2.60 | Pass |
| 06-PD1-GMP-019-014 | 3.48 | Pass |
| 06-PD1-GMP-019-015 | 4.25 | Pass |
| 06-PD1-GMP-019-016 | 3.17 | Pass |
| 06-PD1-GMP-019-017 | 3.18 | Pass |
| 06-PD1-GMP-019-018 | 3.32 | Pass |
| 06-PD1-GMP-019-019 | 3.21 | Pass |
| 06-PD1-GMP-019-020 | 3.42 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-019-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E100600

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-019-004 | F1E100600-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-019-008 | F1E100600-008 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EML SR-03-RC Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Strontium-90)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1E170473
SAMPLING DATE(S): April 02, 2011

SAMPLE(S):

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Sr-90</u> |
|------------------------|---------------------|---------------|--------------|
| 06-PD1-GMP-13-007 | F1E170473-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E170473 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EML SR-03-RC Modified for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-13-007 of this SDG. Both Strontium-90 results were non-detected; therefore, precision criterion was not evaluated. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Strontium-90 on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1E170473

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1E180499
SAMPLING DATES: March 23, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-258-001 | F1E180499-001 | Soil | X |
| 06-PD1T-258-002 | F1E180499-002 | Soil | X |
| 06-PD1T-258-003 | F1E180499-003 | Soil | X |
| 06-PD1T-258-004 | F1E180499-004 | Soil | X |
| 06-PD1T-258-005 | F1E180499-005 | Soil | X |
| 06-PD1T-258-006 | F1E180499-006 | Soil | X |
| 06-PD1T-258-007 | F1E180499-007 | Soil | X |
| 06-PD1T-258-008 | F1E180499-008 | Soil | X |
| 06-PD1T-258-009 | F1E180499-009 | Soil | X |
| 06-PD1T-258-010 | F1E180499-010 | Soil | X |
| 06-PD1T-258-011 | F1E180499-011 | Soil | X |
| 06-PD1T-258-012 | F1E180499-012 | Soil | X |
| 06-PD1T-258-013 | F1E180499-013 | Soil | X |
| 06-PD1T-258-014 | F1E180499-014 | Soil | X |
| 06-PD1T-258-015 | F1E180499-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-258-016 | F1E180499-016 | Soil | X |
| 06-PD1T-258-017 | F1E180499-017 | Soil | X |
| 06-PD1T-258-018 | F1E180499-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E180499 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches near secular equilibrium with Radon-222, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1E190000-261B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.107 pCi/g | 0.0466 pCi/g | 4.61 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1T-258-001 | 2.48 | Fail |
| 06-PD1T-258-002 | 2.53 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1T-258-003 | 1.76 | Fail |
| 06-PD1T-258-004 | 4.87 | Pass |
| 06-PD1T-258-005 | 2.71 | Pass |
| 06-PD1T-258-006 | 3.18 | Pass |
| 06-PD1T-258-007 | 0.65 | Fail |
| 06-PD1T-258-008 | 1.60 | Fail |
| 06-PD1T-258-009 | 3.16 | Pass |
| 06-PD1T-258-010 | 3.37 | Pass |
| 06-PD1T-258-011 | 3.80 | Pass |
| 06-PD1T-258-012 | 1.41 | Fail |
| 06-PD1T-258-013 | 1.41 | Fail |
| 06-PD1T-258-014 | 2.94 | Pass |
| 06-PD1T-258-015 | 3.24 | Pass |
| 06-PD1T-258-016 | 2.48 | Fail |
| 06-PD1T-258-017 | 3.12 | Pass |
| 06-PD1T-258-018 | 3.16 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-258-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1T-258-001 | F1E180499-001 | Lead -214 | B6 | J |
| 06-PD1T-258-002 | F1E180499-002 | Lead -214 | B6 | J |
| 06-PD1T-258-003 | F1E180499-003 | Lead -214 | B6 | J |
| 06-PD1T-258-007 | F1E180499-007 | Lead -214 | B6 | J |
| 06-PD1T-258-008 | F1E180499-008 | Lead -214 | B6 | J |
| 06-PD1T-258-012 | F1E180499-012 | Lead -214 | B6 | J |
| 06-PD1T-258-013 | F1E180499-013 | Lead -214 | B6 | J |
| 06-PD1T-258-016 | F1E180499-016 | Lead -214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment

SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1E180508
SAMPLING DATES: February 15, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-263-001 | F1E180508-001 | Soil | X |
| 06-PD1T-263-002 | F1E180508-002 | Soil | X |
| 06-PD1T-263-003 | F1E180508-003 | Soil | X |
| 06-PD1T-263-004 | F1E180508-004 | Soil | X |
| 06-PD1T-263-005 | F1E180508-005 | Soil | X |
| 06-PD1T-263-006 | F1E180508-006 | Soil | X |
| 06-PD1T-263-007 | F1E180508-007 | Soil | X |
| 06-PD1T-263-008 | F1E180508-008 | Soil | X |
| 06-PD1T-263-009 | F1E180508-009 | Soil | X |
| 06-PD1T-263-010 | F1E180508-010 | Soil | X |
| 06-PD1T-263-011 | F1E180508-011 | Soil | X |
| 06-PD1T-263-012 | F1E180508-012 | Soil | X |
| 06-PD1T-263-013 | F1E180508-013 | Soil | X |
| 06-PD1T-263-014 | F1E180508-014 | Soil | X |
| 06-PD1T-263-015 | F1E180508-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-263-016 | F1E180508-016 | Soil | X |
| 06-PD1T-263-017 | F1E180508-017 | Soil | X |
| 06-PD1T-263-018 | F1E180508-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E180508 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches near secular equilibrium with Radon-222, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-263-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1E240404
SAMPLING DATES: April 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-268-001 | F1E240404-001 | Soil | X |
| 06-PD1T-268-002 | F1E240404-002 | Soil | X |
| 06-PD1T-268-003 | F1E240404-003 | Soil | X |
| 06-PD1T-268-004 | F1E240404-004 | Soil | X |
| 06-PD1T-268-005 | F1E240404-005 | Soil | X |
| 06-PD1T-268-006 | F1E240404-006 | Soil | X |
| 06-PD1T-268-007 | F1E240404-007 | Soil | X |
| 06-PD1T-268-008 | F1E240404-008 | Soil | X |
| 06-PD1T-268-009 | F1E240404-009 | Soil | X |
| 06-PD1T-268-010 | F1E240404-010 | Soil | X |
| 06-PD1T-268-011 | F1E240404-011 | Soil | X |
| 06-PD1T-268-012 | F1E240404-012 | Soil | X |
| 06-PD1T-268-013 | F1E240404-013 | Soil | X |
| 06-PD1T-268-014 | F1E240404-014 | Soil | X |
| 06-PD1T-268-015 | F1E240404-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-268-016 | F1E240404-016 | Soil | X |
| 06-PD1T-268-017 | F1E240404-017 | Soil | X |
| 06-PD1T-268-018 | F1E240404-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E240404 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches near secular equilibrium with Radon-222, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1E240000-194B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.113 pCi/g | 0.0636 pCi/g | 3.55 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1T-268-001 | 1.33 | Fail |
| 06-PD1T-268-002 | 1.61 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1T-268-003 | 1.29 | Fail |
| 06-PD1T-268-004 | 1.06 | Fail |
| 06-PD1T-268-005 | 3.36 | Pass |
| 06-PD1T-268-006 | 0.73 | Fail |
| 06-PD1T-268-007 | 0.56 | Fail |
| 06-PD1T-268-008 | 0.75 | Fail |
| 06-PD1T-268-009 | 0.02 | Fail |
| 06-PD1T-268-010 | 0.00 | Fail |
| 06-PD1T-268-011 | 0.03 | Fail |
| 06-PD1T-268-012 | 0.09 | Fail |
| 06-PD1T-268-013 | 3.84 | Pass |
| 06-PD1T-268-014 | 4.83 | Pass |
| 06-PD1T-268-015 | 2.72 | Pass |
| 06-PD1T-268-016 | 4.40 | Pass |
| 06-PD1T-268-017 | 4.53 | Pass |
| 06-PD1T-268-018 | 2.98 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-268-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1T-268-001 | F1E240404-001 | Lead -214 | B6 | J |
| 06-PD1T-268-002 | F1E240404-002 | Lead -214 | B6 | J |
| 06-PD1T-268-003 | F1E240404-003 | Lead -214 | B6 | J |
| 06-PD1T-268-004 | F1E240404-004 | Lead -214 | B6 | J |
| 06-PD1T-268-006 | F1E240404-006 | Lead -214 | B6 | J |
| 06-PD1T-268-007 | F1E240404-007 | Lead -214 | B6 | J |
| 06-PD1T-268-008 | F1E240404-008 | Lead -214 | B6 | J |
| 06-PD1T-268-009 | F1E240404-009 | Lead -214 | B6 | J |
| 06-PD1T-268-010 | F1E240404-010 | Lead -214 | B6 | J |
| 06-PD1T-268-011 | F1E240404-011 | Lead -214 | B6 | J |
| 06-PD1T-268-012 | F1E240404-012 | Lead -214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1E240405
SAMPLING DATES: May 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-----------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-260-101 | F1E240405-001 | Soil | X |
| 06-PD1T-260-102 | F1E240405-002 | Soil | X |
| 06-PD1T-260-103 | F1E240405-003 | Soil | X |
| 06-PD1T-260-104 | F1E240405-004 | Soil | X |
| 06-PD1T-260-105 | F1E240405-005 | Soil | X |
| 06-PD1T-260-106 | F1E240405-006 | Soil | X |
| 06-PD1T-260-107 | F1E240405-007 | Soil | X |
| 06-PD1T-260-108 | F1E240405-008 | Soil | X |
| 06-PD1T-260-109 | F1E240405-009 | Soil | X |
| 06-PD1T-260-110 | F1E240405-010 | Soil | X |
| 06-PD1T-260-111 | F1E240405-011 | Soil | X |
| 06-PD1T-260-112 | F1E240405-012 | Soil | X |
| 06-PD1T-260-113 | F1E240405-013 | Soil | X |
| 06-PD1T-260-114 | F1E240405-014 | Soil | X |
| 06-PD1T-260-115 | F1E240405-015 | Soil | X |

| | | | |
|-----------------|-----------------|---------------|--------------|
| Client | Lab | Sample | Gamma |
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1T-260-116 | F1E240405-016 | Soil | X |
| 06-PD1T-260-117 | F1E240405-017 | Soil | X |
| 06-PD1T-260-118 | F1E240405-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E240405 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches near secular equilibrium with Radon-222, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-260-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: September 01, 2012

SDG NUMBER: F1E240416
SAMPLING DATES: April 13, 2011 – May 05, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1T-260-107 | F1E240416-005 | Soil | X |
| 06-PD1T-260-109 | F1E240416-006 | Soil | X |
| 06-PD1T-260-113 | F1E240416-007 | Soil | X |
| 06-PD1T-268-005 | F1E240416-008 | Soil | X |
| 06-PD1T-268-018 | F1E240416-009 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E240416 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1T-253-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012
SDG NUMBER: F1E310451
SAMPLING DATE(S): January 29, 2011 - January 31, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-001-001 | F1E310451-001 | Soil | X |
| 06-PD1-SP-001-002 | F1E310451-002 | Soil | X |
| 06-PD1-SP-001-003 | F1E310451-003 | Soil | X |
| 06-PD1-SP-001-004 | F1E310451-004 | Soil | X |
| 06-PD1-SP-001-005 | F1E310451-005 | Soil | X |
| 06-PD1-SP-001-006 | F1E310451-006 | Soil | X |
| 06-PD1-SP-001-007 | F1E310451-007 | Soil | X |
| 06-PD1-SP-001-008 | F1E310451-008 | Soil | X |
| 06-PD1-SP-001-009 | F1E310451-009 | Soil | X |
| 06-PD1-SP-001-010 | F1E310451-010 | Soil | X |
| 06-PD1-SP-001-011 | F1E310451-011 | Soil | X |
| 06-PD1-SP-001-012 | F1E310451-012 | Soil | X |
| 06-PD1-SP-001-013 | F1E310451-013 | Soil | X |
| 06-PD1-SP-001-014 | F1E310451-014 | Soil | X |
| 06-PD1-SP-001-015 | F1E310451-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-001-016 | F1E310451-016 | Soil | X |
| 06-PD1-SP-001-017 | F1E310451-017 | Soil | X |
| 06-PD1-SP-001-018 | F1E310451-018 | Soil | X |
| 06-PD1-SP-001-019 | F1E310451-019 | Soil | X |
| 06-PD1-SP-001-020 | F1E310451-020 | Soil | X |
| 06-PD1-SP-001-021 | F1E310451-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E310451 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-001-001 of this SDG and sample 06-PD1-SP-006-001 of SDG F1E310452. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E310451

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1E310452
SAMPLING DATE(S): January 29, 2011 - January 31, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-006-001 | F1E310452-001 | Soil | X |
| 06-PD1-SP-006-002 | F1E310452-002 | Soil | X |
| 06-PD1-SP-006-003 | F1E310452-003 | Soil | X |
| 06-PD1-SP-006-004 | F1E310452-004 | Soil | X |
| 06-PD1-SP-006-005 | F1E310452-005 | Soil | X |
| 06-PD1-SP-006-006 | F1E310452-006 | Soil | X |
| 06-PD1-SP-006-007 | F1E310452-007 | Soil | X |
| 06-PD1-SP-006-008 | F1E310452-008 | Soil | X |
| 06-PD1-SP-006-009 | F1E310452-009 | Soil | X |
| 06-PD1-SP-006-010 | F1E310452-010 | Soil | X |
| 06-PD1-SP-006-011 | F1E310452-011 | Soil | X |
| 06-PD1-SP-006-012 | F1E310452-012 | Soil | X |
| 06-PD1-SP-006-013 | F1E310452-013 | Soil | X |
| 06-PD1-SP-006-014 | F1E310452-014 | Soil | X |
| 06-PD1-SP-006-015 | F1E310452-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-006-016 | F1E310452-016 | Soil | X |
| 06-PD1-SP-006-017 | F1E310452-017 | Soil | X |
| 06-PD1-SP-006-018 | F1E310452-018 | Soil | X |
| 06-PD1-SP-006-019 | F1E310452-019 | Soil | X |
| 06-PD1-SP-006-020 | F1E310452-020 | Soil | X |
| 06-PD1-SP-006-021 | F1E310452-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E310452 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-SP-006-001 and 06-PD1-SP-006-020 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E310452

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012
SDG NUMBER: F1E310453
SAMPLING DATE(S): January 29, 2011 - January 31, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-004-001 | F1E310453-001 | Soil | X |
| 06-PD1-SP-004-002 | F1E310453-002 | Soil | X |
| 06-PD1-SP-004-003 | F1E310453-003 | Soil | X |
| 06-PD1-SP-004-004 | F1E310453-004 | Soil | X |
| 06-PD1-SP-004-005 | F1E310453-005 | Soil | X |
| 06-PD1-SP-004-006 | F1E310453-006 | Soil | X |
| 06-PD1-SP-004-007 | F1E310453-007 | Soil | X |
| 06-PD1-SP-004-008 | F1E310453-008 | Soil | X |
| 06-PD1-SP-004-009 | F1E310453-009 | Soil | X |
| 06-PD1-SP-004-010 | F1E310453-010 | Soil | X |
| 06-PD1-SP-004-011 | F1E310453-011 | Soil | X |
| 06-PD1-SP-004-012 | F1E310453-012 | Soil | X |
| 06-PD1-SP-004-013 | F1E310453-013 | Soil | X |
| 06-PD1-SP-004-014 | F1E310453-014 | Soil | X |
| 06-PD1-SP-004-015 | F1E310453-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-004-016 | F1E310453-016 | Soil | X |
| 06-PD1-SP-004-017 | F1E310453-017 | Soil | X |
| 06-PD1-SP-004-018 | F1E310453-018 | Soil | X |
| 06-PD1-SP-004-019 | F1E310453-019 | Soil | X |
| 06-PD1-SP-004-020 | F1E310453-020 | Soil | X |
| 06-PD1-SP-004-021 | F1E310453-021 | Soil | X |
| 06-PD1-SP-004-022 | F1E310453-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1E310453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements for method blank F1F010000-048B. No data qualification was necessary.

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1F010000-051B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.138 pCi/g | 0.0564 pCi/g | 4.91 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated detected samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-SP-004-019 | 2.06 | Fail |
| 06-PD1-SP-004-020 | 2.94 | Pass |
| 06-PD1-SP-004-021 | 3.21 | Pass |
| 06-PD1-SP-004-022 | 2.44 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-SP-006-020 of SDG F1E310452 and 06-PD1-SP-004-019 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1E310453

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-SP-004-019 | F1E310453-019 | Lead-214 | B6 | J |
| 06-PD1-SP-004-022 | F1E310453-022 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1F220481
SAMPLING DATE(S): May 17, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-05-110 | F1F220481-001 | Soil | X |
| 06-PD1-SP-05-114 | F1F220481-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1F220481 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

The LCS recovery exceeded the laboratory QC limits in LCS F1F230000-013C, indicating a potential positive bias for the analyte.

| <u>Analyte</u> | <u>LCS Recovery</u> | <u>QC Limits</u> |
|-----------------|---------------------|------------------|
| Total Strontium | 114% | 68-104% |

All associated sample results for Total Strontium were non-detected and less than the RL; therefore, no data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1F220476-001 of SDG F1F220476. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1F220481

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1F220482
SAMPLING DATE(S): May 17, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-05-101 | F1F220482-001 | Soil | X |
| 06-PD1-SP-05-102 | F1F220482-002 | Soil | X |
| 06-PD1-SP-05-103 | F1F220482-003 | Soil | X |
| 06-PD1-SP-05-104 | F1F220482-004 | Soil | X |
| 06-PD1-SP-05-105 | F1F220482-005 | Soil | X |
| 06-PD1-SP-05-106 | F1F220482-006 | Soil | X |
| 06-PD1-SP-05-107 | F1F220482-007 | Soil | X |
| 06-PD1-SP-05-108 | F1F220482-008 | Soil | X |
| 06-PD1-SP-05-109 | F1F220482-009 | Soil | X |
| 06-PD1-SP-05-110 | F1F220482-010 | Soil | X |
| 06-PD1-SP-05-111 | F1F220482-011 | Soil | X |
| 06-PD1-SP-05-112 | F1F220482-012 | Soil | X |
| 06-PD1-SP-05-113 | F1F220482-013 | Soil | X |
| 06-PD1-SP-05-114 | F1F220482-014 | Soil | X |
| 06-PD1-SP-05-115 | F1F220482-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-05-116 | F1F220482-016 | Soil | X |
| 06-PD1-SP-05-117 | F1F220482-017 | Soil | X |
| 06-PD1-SP-05-118 | F1F220482-018 | Soil | X |
| 06-PD1-SP-05-119 | F1F220482-019 | Soil | X |
| 06-PD1-SP-05-120 | F1F220482-020 | Soil | X |
| 06-PD1-SP-05-121 | F1F220482-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1F220482 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements for method blank F1F230000-066B. No data qualification was necessary.

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1F230000-064B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.202 pCi/g | 0.0801 pCi/g | 5.04 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated detected samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-SP-05-101 | 3.03 | Pass |
| 06-PD1-SP-05-102 | 2.88 | Pass |
| 06-PD1-SP-05-103 | 2.78 | Pass |
| 06-PD1-SP-05-104 | 2.73 | Pass |
| 06-PD1-SP-05-105 | 3.83 | Pass |
| 06-PD1-SP-05-106 | 2.82 | Pass |
| 06-PD1-SP-05-107 | 3.17 | Pass |
| 06-PD1-SP-05-108 | 4.67 | Pass |
| 06-PD1-SP-05-109 | 3.49 | Pass |
| 06-PD1-SP-05-110 | 2.35 | Fail |
| 06-PD1-SP-05-111 | 2.71 | Pass |
| 06-PD1-SP-05-112 | 3.72 | Pass |
| 06-PD1-SP-05-113 | 3.18 | Pass |
| 06-PD1-SP-05-114 | 3.53 | Pass |
| 06-PD1-SP-05-115 | 0.08 | Fail |
| 06-PD1-SP-05-116 | 4.08 | Pass |
| 06-PD1-SP-05-117 | 3.34 | Pass |
| 06-PD1-SP-05-118 | 2.02 | Fail |
| 06-PD1-SP-05-119 | 3.95 | Pass |
| 06-PD1-SP-05-120 | 3.46 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-SP-05-101 and 06-PD1-SP-05-121 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1F220482

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-SP-05-110 | F1F220482-010 | Lead-214 | B6 | J |
| 06-PD1-SP-05-115 | F1F220482-015 | Lead-214 | B6 | J |
| 06-PD1-SP-05-118 | F1F220482-018 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G200478
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-003-001 | F1G200478-001 | Soil | X |
| 06-PD1-SP-003-002 | F1G200478-002 | Soil | X |
| 06-PD1-SP-003-003 | F1G200478-003 | Soil | X |
| 06-PD1-SP-003-004 | F1G200478-004 | Soil | X |
| 06-PD1-SP-003-005 | F1G200478-005 | Soil | X |
| 06-PD1-SP-003-006 | F1G200478-006 | Soil | X |
| 06-PD1-SP-003-007 | F1G200478-007 | Soil | X |
| 06-PD1-SP-003-008 | F1G200478-008 | Soil | X |
| 06-PD1-SP-003-009 | F1G200478-009 | Soil | X |
| 06-PD1-SP-003-010 | F1G200478-010 | Soil | X |
| 06-PD1-SP-003-011 | F1G200478-011 | Soil | X |
| 06-PD1-SP-003-012 | F1G200478-012 | Soil | X |
| 06-PD1-SP-003-013 | F1G200478-013 | Soil | X |
| 06-PD1-SP-003-014 | F1G200478-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-003-015 | F1G200478-015 | Soil | X |
| 06-PD1-SP-003-016 | F1G200478-016 | Soil | X |
| 06-PD1-SP-003-017 | F1G200478-017 | Soil | X |
| 06-PD1-SP-003-018 | F1G200478-018 | Soil | X |
| 06-PD1-SP-003-019 | F1G200478-019 | Soil | X |
| 06-PD1-SP-003-020 | F1G200478-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G200478 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-003-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G200478

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G200479
SAMPLING DATE(S): January 31, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-033-021 | F1G200479-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G200479 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1G270000-128B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0899 pCi/g | 0.0627 pCi/g | 2.87 |

Z_{DER} was calculated to determine the relative difference of the sample analyte result with the failed blank analyte result. The associated detected sample with a $Z_{DER} < 2.58$ is potentially biased high and was qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-SP-003-021 | 1.95 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-003-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G200479

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-SP-003-021 | F1G200479-001 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G200491
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-008-001 | F1G200491-001 | Soil | X |
| 06-PD1-SP-008-002 | F1G200491-002 | Soil | X |
| 06-PD1-SP-008-003 | F1G200491-003 | Soil | X |
| 06-PD1-SP-008-004 | F1G200491-004 | Soil | X |
| 06-PD1-SP-008-005 | F1G200491-005 | Soil | X |
| 06-PD1-SP-008-006 | F1G200491-006 | Soil | X |
| 06-PD1-SP-008-007 | F1G200491-007 | Soil | X |
| 06-PD1-SP-008-008 | F1G200491-008 | Soil | X |
| 06-PD1-SP-008-009 | F1G200491-009 | Soil | X |
| 06-PD1-SP-008-010 | F1G200491-010 | Soil | X |
| 06-PD1-SP-008-011 | F1G200491-011 | Soil | X |
| 06-PD1-SP-008-012 | F1G200491-012 | Soil | X |
| 06-PD1-SP-008-013 | F1G200491-013 | Soil | X |
| 06-PD1-SP-008-014 | F1G200491-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-008-015 | F1G200491-05 | Soil | X |
| 06-PD1-SP-008-016 | F1G200491-016 | Soil | X |
| 06-PD1-SP-008-017 | F1G200491-017 | Soil | X |
| 06-PD1-SP-008-018 | F1G200491-018 | Soil | X |
| 06-PD1-SP-008-019 | F1G200491-019 | Soil | X |
| 06-PD1-SP-008-020 | F1G200491-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G200491 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-008-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G200491

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G220451
SAMPLING DATE(S): May 06, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-012-101 | F1G220451-001 | Soil | X |
| 06-PD1-SP-012-102 | F1G220451-002 | Soil | X |
| 06-PD1-SP-012-103 | F1G220451-003 | Soil | X |
| 06-PD1-SP-012-104 | F1G220451-004 | Soil | X |
| 06-PD1-SP-012-105 | F1G220451-005 | Soil | X |
| 06-PD1-SP-012-1067 | F1G220451-006 | Soil | X |
| 06-PD1-SP-012-108 | F1G220451-007 | Soil | X |
| 06-PD1-SP-012-109 | F1G220451-008 | Soil | X |
| 06-PD1-SP-012-110 | F1G220451-009 | Soil | X |
| 06-PD1-SP-012-111 | F1G220451-010 | Soil | X |
| 06-PD1-SP-012-112 | F1G220451-011 | Soil | X |
| 06-PD1-SP-012-113 | F1G220451-012 | Soil | X |
| 06-PD1-SP-012-114 | F1G220451-013 | Soil | X |
| 06-PD1-SP-012-115 | F1G220451-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-012-116 | F1G220451-015 | Soil | X |
| 06-PD1-SP-012-117 | F1G220451-016 | Soil | X |
| 06-PD1-SP-012-118 | F1G220451-017 | Soil | X |
| 06-PD1-SP-012-119 | F1G220451-018 | Soil | X |
| 06-PD1-SP-012-120 | F1G220451-019 | Soil | X |
| 06-PD1-SP-012-121 | F1G220451-020 | Soil | X |
| 06-PD1-SP-012-122 | F1G220451-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G220451 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements for method blank F1G270000-124B. No data qualification was necessary.

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1G270000-128B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0899 pCi/g | 0.0627 pCi/g | 2.87 |

Z_{DER} was calculated to determine the relative difference of the sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample was demonstrated to be significantly different ($Z_{DER} > 2.58$) and did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-SP-012-121 | 3.19 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-012-101 of this SDG and sample 06-PD1-SP-003-021 of SDG F1G200479. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G220451

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G220454
SAMPLING DATE(S): June 10, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-011-201 | F1G220454-001 | Soil | X |
| 06-PD1-SP-011-202 | F1G220454-002 | Soil | X |
| 06-PD1-SP-011-203 | F1G220454-003 | Soil | X |
| 06-PD1-SP-011-204 | F1G220454-004 | Soil | X |
| 06-PD1-SP-011-205 | F1G220454-005 | Soil | X |
| 06-PD1-SP-011-206 | F1G220454-006 | Soil | X |
| 06-PD1-SP-011-207 | F1G220454-007 | Soil | X |
| 06-PD1-SP-011-208 | F1G220454-008 | Soil | X |
| 06-PD1-SP-011-209 | F1G220454-009 | Soil | X |
| 06-PD1-SP-011-210 | F1G220454-010 | Soil | X |
| 06-PD1-SP-011-211 | F1G220454-011 | Soil | X |
| 06-PD1-SP-011-212 | F1G220454-012 | Soil | X |
| 06-PD1-SP-011-213 | F1G220454-013 | Soil | X |
| 06-PD1-SP-011-214 | F1G220454-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-011-215 | F1G220454-015 | Soil | X |
| 06-PD1-SP-011-216 | F1G220454-016 | Soil | X |
| 06-PD1-SP-011-217 | F1G220454-017 | Soil | X |
| 06-PD1-SP-011-218 | F1G220454-018 | Soil | X |
| 06-PD1-SP-011-219 | F1G220454-019 | Soil | X |
| 06-PD1-SP-011-220 | F1G220454-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G220454 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-011-201 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G220454

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G220456
SAMPLING DATE(S): March 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-009-021 | F1G220456-001 | Soil | X |
| 06-PD1-SP-009-022 | F1G220456-002 | Soil | X |
| 06-PD1-SP-009-023 | F1G220456-003 | Soil | X |
| 06-PD1-SP-009-024 | F1G220456-004 | Soil | X |
| 06-PD1-SP-009-025 | F1G220456-005 | Soil | X |
| 06-PD1-SP-009-026 | F1G220456-006 | Soil | X |
| 06-PD1-SP-009-027 | F1G220456-007 | Soil | X |
| 06-PD1-SP-009-028 | F1G220456-008 | Soil | X |
| 06-PD1-SP-009-029 | F1G220456-009 | Soil | X |
| 06-PD1-SP-009-030 | F1G220456-010 | Soil | X |
| 06-PD1-SP-009-031 | F1G220456-011 | Soil | X |
| 06-PD1-SP-009-032 | F1G220456-012 | Soil | X |
| 06-PD1-SP-009-033 | F1G220456-013 | Soil | X |
| 06-PD1-SP-009-034 | F1G220456-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-009-035 | F1G220456-015 | Soil | X |
| 06-PD1-SP-009-036 | F1G220456-016 | Soil | X |
| 06-PD1-SP-009-037 | F1G220456-017 | Soil | X |
| 06-PD1-SP-009-038 | F1G220456-018 | Soil | X |
| 06-PD1-SP-009-039 | F1G220456-019 | Soil | X |
| 06-PD1-SP-009-040 | F1G220456-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G220456 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-009-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G220456

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1G220466
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-007-001 | F1G220466-001 | Soil | X |
| 06-PD1-SP-007-002 | F1G220466-002 | Soil | X |
| 06-PD1-SP-007-003 | F1G220466-003 | Soil | X |
| 06-PD1-SP-007-004 | F1G220466-004 | Soil | X |
| 06-PD1-SP-007-005 | F1G220466-005 | Soil | X |
| 06-PD1-SP-007-006 | F1G220466-006 | Soil | X |
| 06-PD1-SP-007-007 | F1G220466-007 | Soil | X |
| 06-PD1-SP-007-008 | F1G220466-008 | Soil | X |
| 06-PD1-SP-007-009 | F1G220466-009 | Soil | X |
| 06-PD1-SP-007-010 | F1G220466-010 | Soil | X |
| 06-PD1-SP-007-011 | F1G220466-011 | Soil | X |
| 06-PD1-SP-007-012 | F1G220466-012 | Soil | X |
| 06-PD1-SP-007-013 | F1G220466-013 | Soil | X |
| 06-PD1-SP-007-014 | F1G220466-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-007-015 | F1G220466-015 | Soil | X |
| 06-PD1-SP-007-016 | F1G220466-016 | Soil | X |
| 06-PD1-SP-007-017 | F1G220466-017 | Soil | X |
| 06-PD1-SP-007-018 | F1G220466-018 | Soil | X |
| 06-PD1-SP-007-019 | F1G220466-019 | Soil | X |
| 06-PD1-SP-007-020 | F1G220466-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G220466 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-007-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G220466

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1G220475
SAMPLING DATE(S): March 16, 2011 – June 10, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-009-025 | F1G220475-001 | Soil | X |
| 06-PD1-SP-009-028 | F1G220475-002 | Soil | X |
| 06-PD1-SP-009-031 | F1G220475-003 | Soil | X |
| 06-PD1-SP-011-204 | F1G220475-004 | Soil | X |
| 06-PD1-SP-011-210 | F1G220475-005 | Soil | X |
| 06-PD1-SP-011-211 | F1G220475-006 | Soil | X |
| 06-PD1-SP-012-109 | F1G220475-007 | Soil | X |
| 06-PD1-SP-012-117 | F1G220475-008 | Soil | X |
| 06-PD1-SP-009-035 | F1G220475-009 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G220475 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1G200502-001 of SDG F1G200502. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G220475

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1G280416
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-003-011 | F1G280416-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1G280416 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1G280409-001 of SDG F1G280409. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1G280416

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 31, 2012

SDG NUMBER: F1H230462
SAMPLING DATE(S): June 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-013-101 | F1H230462-001 | Soil | X |
| 06-PD1-SP-013-102 | F1H230462-002 | Soil | X |
| 06-PD1-SP-013-103 | F1H230462-003 | Soil | X |
| 06-PD1-SP-013-104 | F1H230462-004 | Soil | X |
| 06-PD1-SP-013-105 | F1H230462-005 | Soil | X |
| 06-PD1-SP-013-106 | F1H230462-006 | Soil | X |
| 06-PD1-SP-013-107 | F1H230462-007 | Soil | X |
| 06-PD1-SP-013-108 | F1H230462-008 | Soil | X |
| 06-PD1-SP-013-109 | F1H230462-009 | Soil | X |
| 06-PD1-SP-013-110 | F1H230462-010 | Soil | X |
| 06-PD1-SP-013-111 | F1H230462-011 | Soil | X |
| 06-PD1-SP-013-112 | F1H230462-012 | Soil | X |
| 06-PD1-SP-013-113 | F1H230462-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-013-114 | F1H230462-014 | Soil | X |
| 06-PD1-SP-013-115 | F1H230462-015 | Soil | X |
| 06-PD1-SP-013-116 | F1H230462-016 | Soil | X |
| 06-PD1-SP-013-117 | F1H230462-017 | Soil | X |
| 06-PD1-SP-013-118 | F1H230462-018 | Soil | X |
| 06-PD1-SP-013-119 | F1H230462-019 | Soil | X |
| 06-PD1-SP-013-120 | F1H230462-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1H230462 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All data was rejected for sample 06-PD1-SP-013-106. See the MAJOR ISSUES section below for details.

All other laboratory data were acceptable without qualification.

MAJOR ISSUES

The laboratory results for client sample 06-PD1-SP-013-106 were calculated using a sample aliquant of 3535 grams. This weight is approximately 10x the capacity of the “tuna can” geometry. This apparent transcription error has caused all sample results to be biased low by a factor of 10. For this reason the Radium-226, Bismuth-214, Lead-214, Lead-210, and Cesium-137 results for this sample were assigned a validation qualifier as rejected (R).

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-013-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1H230462

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-SP-013-106 | F1H230462-006 | Radium-226 | P | R |
| | | Bismuth-214 | P | R |
| | | Lead-214 | P | R |
| | | Lead-210 | P | R |
| | | Cesium-137 | P | R |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1H230465
SAMPLING DATE(S): June 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-013-121 | F1H230465-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1H230465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1H220435-001 of SDG F1H220435. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1H230465

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1H240484
SAMPLING DATE(S): June 13, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-013-106 | F1H240484-001 | Soil | X |
| 06-PD1-SP-013-117 | F1H240484-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1H240484 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1H240482-001 of SDG F1H240482. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1H240484

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1H240508
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-008-002 | F1H240508-002 | Soil | X |
| 06-PD1-GMP-008-004 | F1H240508-004 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1H240508 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1H220435-001 of SDG F1H220435. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1H240508

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1H310440
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-029-001 | F1H310440-001 | Soil | X |
| 06-PD1-GMP-029-002 | F1H310440-002 | Soil | X |
| 06-PD1-GMP-029-003 | F1H310440-003 | Soil | X |
| 06-PD1-GMP-029-004 | F1H310440-004 | Soil | X |
| 06-PD1-GMP-029-005 | F1H310440-005 | Soil | X |
| 06-PD1-GMP-029-006 | F1H310440-006 | Soil | X |
| 06-PD1-GMP-029-007 | F1H310440-007 | Soil | X |
| 06-PD1-GMP-029-008 | F1H310440-008 | Soil | X |
| 06-PD1-GMP-029-009 | F1H310440-009 | Soil | X |
| 06-PD1-GMP-029-010 | F1H310440-010 | Soil | X |
| 06-PD1-GMP-029-011 | F1H310440-011 | Soil | X |
| 06-PD1-GMP-029-012 | F1H310440-012 | Soil | X |
| 06-PD1-GMP-029-013 | F1H310440-013 | Soil | X |
| 06-PD1-GMP-029-014 | F1H310440-014 | Soil | X |
| 06-PD1-GMP-029-015 | F1H310440-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-029-016 | F1H310440-016 | Soil | X |
| 06-PD1-GMP-029-017 | F1H310440-017 | Soil | X |
| 06-PD1-GMP-029-018 | F1H310440-018 | Soil | X |
| 06-PD1-GMP-029-019 | F1H310440-019 | Soil | X |
| 06-PD1-GMP-029-020 | F1H310440-020 | Soil | X |
| 06-PD1-GMP-029-021 | F1H310440-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1H310440 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 1-10 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-029-001 and 06-PD1-GMP-029-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1H310440

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1I060426
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-007-006 | F1I060426-001 | Soil | X |
| 06-PD1-SP-007-016 | F1I060426-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1I060426 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1I060424-001 of SDG F1I060424. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1I060426

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1I080459
SAMPLING DATE(S): August 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-10-301 | F1I080459-001 | Soil | X |
| 06-PD1-SP-10-302 | F1I080459-002 | Soil | X |
| 06-PD1-SP-10-303 | F1I080459-003 | Soil | X |
| 06-PD1-SP-10-304 | F1I080459-004 | Soil | X |
| 06-PD1-SP-10-305 | F1I080459-005 | Soil | X |
| 06-PD1-SP-10-306 | F1I080459-006 | Soil | X |
| 06-PD1-SP-10-307 | F1I080459-007 | Soil | X |
| 06-PD1-SP-10-308 | F1I080459-008 | Soil | X |
| 06-PD1-SP-10-309 | F1I080459-009 | Soil | X |
| 06-PD1-SP-10-310 | F1I080459-010 | Soil | X |
| 06-PD1-SP-10-311 | F1I080459-011 | Soil | X |
| 06-PD1-SP-10-312 | F1I080459-012 | Soil | X |
| 06-PD1-SP-10-313 | F1I080459-013 | Soil | X |
| 06-PD1-SP-10-314 | F1I080459-014 | Soil | X |
| 06-PD1-SP-10-315 | F1I080459-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-10-316 | F1I080459-016 | Soil | X |
| 06-PD1-SP-10-317 | F1I080459-017 | Soil | X |
| 06-PD1-SP-10-318 | F1I080459-018 | Soil | X |
| 06-PD1-SP-10-319 | F1I080459-019 | Soil | X |
| 06-PD1-SP-10-320 | F1I080459-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1I080459 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-10-301 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1I080459

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F1I080462
SAMPLING DATE(S): August 25, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-10-301 | F1I080462-001 | Soil | X |
| 06-PD1-SP-10-305 | F1I080462-002 | Soil | X |
| 06-PD1-SP-10-306 | F1I080462-003 | Soil | X |
| 06-PD1-SP-10-310 | F1I080462-004 | Soil | X |
| 06-PD1-SP-10-312 | F1I080462-005 | Soil | X |
| 06-PD1-SP-10-313 | F1I080462-006 | Soil | X |
| 06-PD1-SP-10-318 | F1I080462-007 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1I080462 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-10-301 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1I080462

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012
SDG NUMBER: F1I260431
SAMPLING DATE(S): April 19, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-053-001 | F1I260431-001 | Soil | X |
| 06-PD1-GMP-053-002 | F1I260431-002 | Soil | X |
| 06-PD1-GMP-053-003 | F1I260431-003 | Soil | X |
| 06-PD1-GMP-053-004 | F1I260431-004 | Soil | X |
| 06-PD1-GMP-053-005 | F1I260431-005 | Soil | X |
| 06-PD1-GMP-053-006 | F1I260431-006 | Soil | X |
| 06-PD1-GMP-053-007 | F1I260431-007 | Soil | X |
| 06-PD1-GMP-053-008 | F1I260431-008 | Soil | X |
| 06-PD1-GMP-053-009 | F1I260431-009 | Soil | X |
| 06-PD1-GMP-053-010 | F1I260431-010 | Soil | X |
| 06-PD1-GMP-053-011 | F1I260431-011 | Soil | X |
| 06-PD1-GMP-053-012 | F1I260431-012 | Soil | X |
| 06-PD1-GMP-053-013 | F1I260431-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-053-014 | F1I260431-014 | Soil | X |
| 06-PD1-GMP-053-015 | F1I260431-015 | Soil | X |
| 06-PD1-GMP-053-016 | F1I260431-016 | Soil | X |
| 06-PD1-GMP-053-017 | F1I260431-017 | Soil | X |
| 06-PD1-GMP-053-018 | F1I260431-018 | Soil | X |
| 06-PD1-GMP-053-019 | F1I260431-019 | Soil | X |
| 06-PD1-GMP-053-020 | F1I260431-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1I260431 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 2 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F11270000-198B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0773 pCi/g | 0.0523 pCi/g | 2.96 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-053-001 | 3.68 | Pass |
| 06-PD1-GMP-053-002 | 2.74 | Pass |
| 06-PD1-GMP-053-003 | 3.89 | Pass |
| 06-PD1-GMP-053-004 | 2.32 | Fail |
| 06-PD1-GMP-053-005 | 3.14 | Pass |
| 06-PD1-GMP-053-006 | 2.48 | Fail |
| 06-PD1-GMP-053-007 | 1.92 | Fail |
| 06-PD1-GMP-053-008 | 3.05 | Pass |
| 06-PD1-GMP-053-009 | 1.61 | Fail |
| 06-PD1-GMP-053-010 | 0.17 | Fail |
| 06-PD1-GMP-053-011 | 2.62 | Pass |
| 06-PD1-GMP-053-012 | 2.99 | Pass |
| 06-PD1-GMP-053-013 | 3.46 | Pass |
| 06-PD1-GMP-053-014 | 1.83 | Fail |
| 06-PD1-GMP-053-015 | 1.86 | Fail |
| 06-PD1-GMP-053-016 | 2.32 | Fail |
| 06-PD1-GMP-053-017 | 2.57 | Fail |
| 06-PD1-GMP-053-018 | 1.63 | Fail |
| 06-PD1-GMP-053-019 | 2.03 | Fail |
| 06-PD1-GMP-053-020 | 2.13 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-053-005 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1I260431

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-053-004 | F1I260431-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-006 | F1I260431-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-007 | F1I260431-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-009 | F1I260431-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-010 | F1I260431-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-014 | F1I260431-014 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-015 | F1I260431-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-016 | F1I260431-016 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-017 | F1I260431-017 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-018 | F1I260431-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-019 | F1I260431-019 | Lead-214 | B6 | J |
| 06-PD1-GMP-053-020 | F1I260431-020 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1I260433
SAMPLING DATE(S): April 19, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-053-007 | F1I260433-001 | Soil | X |
| 06-PD1-GMP-053-015 | F1I260433-002 | Soil | X |
| 06-PD1-GMP-053-019 | F1I260433-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1I260433 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 17 days. Due to the relatively long half-lives of the analytes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-053-007 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1I260433

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012
SDG NUMBER: F1J190418
SAMPLING DATE(S): February 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-006-001 | F1J190418-001 | Soil | X |
| 06-PD1-GMP-006-002 | F1J190418-002 | Soil | X |
| 06-PD1-GMP-006-003 | F1J190418-003 | Soil | X |
| 06-PD1-GMP-006-004 | F1J190418-004 | Soil | X |
| 06-PD1-GMP-006-005 | F1J190418-005 | Soil | X |
| 06-PD1-GMP-006-006 | F1J190418-006 | Soil | X |
| 06-PD1-GMP-006-007 | F1J190418-007 | Soil | X |
| 06-PD1-GMP-006-008 | F1J190418-008 | Soil | X |
| 06-PD1-GMP-006-009 | F1J190418-009 | Soil | X |
| 06-PD1-GMP-006-010 | F1J190418-010 | Soil | X |
| 06-PD1-GMP-006-011 | F1J190418-011 | Soil | X |
| 06-PD1-GMP-006-012 | F1J190418-012 | Soil | X |
| 06-PD1-GMP-006-013 | F1J190418-013 | Soil | X |
| 06-PD1-GMP-006-014 | F1J190418-014 | Soil | X |
| 06-PD1-GMP-006-015 | F1J190418-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-006-016 | F1J190418-016 | Soil | X |
| 06-PD1-GMP-006-017 | F1J190418-017 | Soil | X |
| 06-PD1-GMP-006-018 | F1J190418-018 | Soil | X |
| 06-PD1-GMP-006-019 | F1J190418-019 | Soil | X |
| 06-PD1-GMP-006-020 | F1J190418-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190418 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 61-73 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J250000-102B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.159 pCi/g | 0.0748 pCi/g | 4.26 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} \leq 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-006-001 | 3.84 | Pass |
| 06-PD1-GMP-006-002 | 2.84 | Pass |
| 06-PD1-GMP-006-003 | 2.29 | Fail |
| 06-PD1-GMP-006-004 | 2.45 | Fail |
| 06-PD1-GMP-006-005 | 1.86 | Fail |
| 06-PD1-GMP-006-006 | 3.41 | Pass |
| 06-PD1-GMP-006-007 | 2.15 | Fail |
| 06-PD1-GMP-006-008 | 3.47 | Pass |
| 06-PD1-GMP-006-009 | 3.56 | Pass |
| 06-PD1-GMP-006-010 | 3.31 | Pass |
| 06-PD1-GMP-006-011 | 3.13 | Pass |
| 06-PD1-GMP-006-012 | 1.59 | Fail |
| 06-PD1-GMP-006-013 | 2.58 | Fail |
| 06-PD1-GMP-006-014 | 3.37 | Pass |
| 06-PD1-GMP-006-015 | 1.88 | Fail |
| 06-PD1-GMP-006-016 | 0.99 | Fail |
| 06-PD1-GMP-006-017 | 2.66 | Pass |
| 06-PD1-GMP-006-018 | 1.71 | Fail |
| 06-PD1-GMP-006-019 | 2.03 | Fail |
| 06-PD1-GMP-006-020 | 3.25 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-006-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1J190418

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-006-003 | F1J190418-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-004 | F1J190418-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-005 | F1J190418-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-007 | F1J190418-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-012 | F1J190418-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-013 | F1J190418-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-015 | F1J190418-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-016 | F1J190418-016 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-018 | F1J190418-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-006-019 | F1J190418-019 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012
SDG NUMBER: F1J190420
SAMPLING DATE(S): February 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-007-001 | F1J190420-001 | Soil | X |
| 06-PD1-GMP-007-002 | F1J190420-002 | Soil | X |
| 06-PD1-GMP-007-003 | F1J190420-003 | Soil | X |
| 06-PD1-GMP-007-004 | F1J190420-004 | Soil | X |
| 06-PD1-GMP-007-005 | F1J190420-005 | Soil | X |
| 06-PD1-GMP-007-006 | F1J190420-006 | Soil | X |
| 06-PD1-GMP-007-007 | F1J190420-007 | Soil | X |
| 06-PD1-GMP-007-008 | F1J190420-008 | Soil | X |
| 06-PD1-GMP-007-009 | F1J190420-009 | Soil | X |
| 06-PD1-GMP-007-010 | F1J190420-010 | Soil | X |
| 06-PD1-GMP-007-011 | F1J190420-011 | Soil | X |
| 06-PD1-GMP-007-012 | F1J190420-012 | Soil | X |
| 06-PD1-GMP-007-013 | F1J190420-013 | Soil | X |
| 06-PD1-GMP-007-014 | F1J190420-014 | Soil | X |
| 06-PD1-GMP-007-015 | F1J190420-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-007-016 | F1J190420-016 | Soil | X |
| 06-PD1-GMP-007-017 | F1J190420-017 | Soil | X |
| 06-PD1-GMP-007-018 | F1J190420-018 | Soil | X |
| 06-PD1-GMP-007-019 | F1J190420-019 | Soil | X |
| 06-PD1-GMP-007-020 | F1J190420-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190420 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 60 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-007-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190420

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 22, 2012

SDG NUMBER: F1J190422
SAMPLING DATE(S): March 30, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-014-001 | F1J190422-001 | Soil | X |
| 06-PD1-GMP-014-002 | F1J190422-002 | Soil | X |
| 06-PD1-GMP-014-003 | F1J190422-003 | Soil | X |
| 06-PD1-GMP-014-004 | F1J190422-004 | Soil | X |
| 06-PD1-GMP-014-005 | F1J190422-005 | Soil | X |
| 06-PD1-GMP-014-006 | F1J190422-006 | Soil | X |
| 06-PD1-GMP-014-007 | F1J190422-007 | Soil | X |
| 06-PD1-GMP-014-008 | F1J190422-008 | Soil | X |
| 06-PD1-GMP-014-009 | F1J190422-009 | Soil | X |
| 06-PD1-GMP-014-010 | F1J190422-010 | Soil | X |
| 06-PD1-GMP-014-011 | F1J190422-011 | Soil | X |
| 06-PD1-GMP-014-012 | F1J190422-012 | Soil | X |
| 06-PD1-GMP-014-013 | F1J190422-013 | Soil | X |
| 06-PD1-GMP-014-014 | F1J190422-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-014-015 | F1J190422-015 | Soil | X |
| 06-PD1-GMP-014-016 | F1J190422-016 | Soil | X |
| 06-PD1-GMP-014-017 | F1J190422-017 | Soil | X |
| 06-PD1-GMP-014-018 | F1J190422-018 | Soil | X |
| 06-PD1-GMP-014-019 | F1J190422-019 | Soil | X |
| 06-PD1-GMP-014-020 | F1J190422-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190422 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 27-47 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-014-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1J190422

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1J190424
SAMPLING DATE(S): March 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-015-001 | F1J190424-001 | Soil | X |
| 06-PD1-GMP-015-002 | F1J190424-002 | Soil | X |
| 06-PD1-GMP-015-003 | F1J190424-003 | Soil | X |
| 06-PD1-GMP-015-004 | F1J190424-004 | Soil | X |
| 06-PD1-GMP-015-005 | F1J190424-005 | Soil | X |
| 06-PD1-GMP-015-006 | F1J190424-006 | Soil | X |
| 06-PD1-GMP-015-007 | F1J190424-007 | Soil | X |
| 06-PD1-GMP-015-008 | F1J190424-008 | Soil | X |
| 06-PD1-GMP-015-009 | F1J190424-009 | Soil | X |
| 06-PD1-GMP-015-010 | F1J190424-010 | Soil | X |
| 06-PD1-GMP-015-011 | F1J190424-011 | Soil | X |
| 06-PD1-GMP-015-012 | F1J190424-012 | Soil | X |
| 06-PD1-GMP-015-013 | F1J190424-013 | Soil | X |
| 06-PD1-GMP-015-014 | F1J190424-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-015-015 | F1J190424-015 | Soil | X |
| 06-PD1-GMP-015-016 | F1J190424-016 | Soil | X |
| 06-PD1-GMP-015-017 | F1J190424-017 | Soil | X |
| 06-PD1-GMP-015-018 | F1J190424-018 | Soil | X |
| 06-PD1-GMP-015-019 | F1J190424-019 | Soil | X |
| 06-PD1-GMP-015-020 | F1J190424-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190424 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 31-64 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-015-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190424

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1J190425
SAMPLING DATE(S): March 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-015-021 | F1J190425-001 | Soil | X |
| 06-PD1-GMP-015-022 | F1J190425-002 | Soil | X |
| 06-PD1-GMP-015-023 | F1J190425-003 | Soil | X |
| 06-PD1-GMP-015-024 | F1J190425-004 | Soil | X |
| 06-PD1-GMP-015-025 | F1J190425-005 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190425 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 32-64 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-015-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190425

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1J190426
SAMPLING DATE(S): March 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-015-021 | F1J190426-001 | Soil | X |
| 06-PD1-GMP-015-022 | F1J190426-002 | Soil | X |
| 06-PD1-GMP-015-023 | F1J190426-003 | Soil | X |
| 06-PD1-GMP-015-024 | F1J190426-004 | Soil | X |
| 06-PD1-GMP-015-025 | F1J190426-005 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190426 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 27 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-015-021 of SDG F1J190425. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190426

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J190455
SAMPLING DATE(S): February 24, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-003-001 | F1J190455-001 | Soil | X |
| 06-PD1-GMP-003-002 | F1J190455-002 | Soil | X |
| 06-PD1-GMP-003-003 | F1J190455-003 | Soil | X |
| 06-PD1-GMP-003-004 | F1J190455-004 | Soil | X |
| 06-PD1-GMP-003-005 | F1J190455-005 | Soil | X |
| 06-PD1-GMP-003-006 | F1J190455-006 | Soil | X |
| 06-PD1-GMP-003-007 | F1J190455-007 | Soil | X |
| 06-PD1-GMP-003-008 | F1J190455-008 | Soil | X |
| 06-PD1-GMP-003-009 | F1J190455-009 | Soil | X |
| 06-PD1-GMP-003-010 | F1J190455-010 | Soil | X |
| 06-PD1-GMP-003-011 | F1J190455-011 | Soil | X |
| 06-PD1-GMP-003-012 | F1J190455-012 | Soil | X |
| 06-PD1-GMP-003-013 | F1J190455-013 | Soil | X |
| 06-PD1-GMP-003-014 | F1J190455-014 | Soil | X |
| 06-PD1-GMP-003-015 | F1J190455-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-003-016 | F1J190455-016 | Soil | X |
| 06-PD1-GMP-003-017 | F1J190455-017 | Soil | X |
| 06-PD1-GMP-003-018 | F1J190455-018 | Soil | X |
| 06-PD1-GMP-003-019 | F1J190455-019 | Soil | X |
| 06-PD1-GMP-003-020 | F1J190455-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190455 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 56-62 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J200000-098B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.142 pCi/g | 0.0896 pCi/g | 3.16 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-003-001 | 2.77 | Pass |
| 06-PD1-GMP-003-002 | 2.93 | Pass |
| 06-PD1-GMP-003-003 | 3.12 | Pass |
| 06-PD1-GMP-003-004 | 2.82 | Pass |
| 06-PD1-GMP-003-005 | 3.16 | Pass |
| 06-PD1-GMP-003-006 | 2.00 | Fail |
| 06-PD1-GMP-003-007 | 3.37 | Pass |
| 06-PD1-GMP-003-008 | 2.29 | Fail |
| 06-PD1-GMP-003-009 | 3.00 | Pass |
| 06-PD1-GMP-003-010 | 3.13 | Pass |
| 06-PD1-GMP-003-011 | 3.22 | Pass |
| 06-PD1-GMP-003-012 | 3.67 | Pass |
| 06-PD1-GMP-003-013 | 3.67 | Pass |
| 06-PD1-GMP-003-014 | 3.44 | Pass |
| 06-PD1-GMP-003-015 | 3.58 | Pass |
| 06-PD1-GMP-003-016 | 3.31 | Pass |
| 06-PD1-GMP-003-017 | 2.72 | Pass |
| 06-PD1-GMP-003-018 | 3.34 | Pass |
| 06-PD1-GMP-003-019 | 1.36 | Fail |
| 06-PD1-GMP-003-020 | 1.58 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-003-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190455

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-003-006 | F1J190455-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-003-008 | F1J190455-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-003-019 | F1J190455-019 | Lead-214 | B6 | J |
| 06-PD1-GMP-003-020 | F1J190455-020 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J190457
SAMPLING DATE(S): February 23, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-002-001 | F1J190457-001 | Soil | X |
| 06-PD1-GMP-002-002 | F1J190457-002 | Soil | X |
| 06-PD1-GMP-002-003 | F1J190457-003 | Soil | X |
| 06-PD1-GMP-002-004 | F1J190457-004 | Soil | X |
| 06-PD1-GMP-002-005 | F1J190457-005 | Soil | X |
| 06-PD1-GMP-002-006 | F1J190457-006 | Soil | X |
| 06-PD1-GMP-002-007 | F1J190457-007 | Soil | X |
| 06-PD1-GMP-002-008 | F1J190457-008 | Soil | X |
| 06-PD1-GMP-002-009 | F1J190457-009 | Soil | X |
| 06-PD1-GMP-002-010 | F1J190457-010 | Soil | X |
| 06-PD1-GMP-002-011 | F1J190457-011 | Soil | X |
| 06-PD1-GMP-002-012 | F1J190457-012 | Soil | X |
| 06-PD1-GMP-002-013 | F1J190457-013 | Soil | X |
| 06-PD1-GMP-002-014 | F1J190457-014 | Soil | X |
| 06-PD1-GMP-002-015 | F1J190457-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-002-016 | F1J190457-016 | Soil | X |
| 06-PD1-GMP-002-017 | F1J190457-017 | Soil | X |
| 06-PD1-GMP-002-018 | F1J190457-018 | Soil | X |
| 06-PD1-GMP-002-019 | F1J190457-019 | Soil | X |
| 06-PD1-GMP-002-020 | F1J190457-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190457 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 57-85 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-002-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190457

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J190460
SAMPLING DATE(S): February 24, 2011- February 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-004-001 | F1J190460-001 | Soil | X |
| 06-PD1-GMP-004-002 | F1J190460-002 | Soil | X |
| 06-PD1-GMP-004-003 | F1J190460-003 | Soil | X |
| 06-PD1-GMP-004-004 | F1J190460-004 | Soil | X |
| 06-PD1-GMP-004-005 | F1J190460-005 | Soil | X |
| 06-PD1-GMP-004-006 | F1J190460-006 | Soil | X |
| 06-PD1-GMP-004-007 | F1J190460-007 | Soil | X |
| 06-PD1-GMP-004-008 | F1J190460-008 | Soil | X |
| 06-PD1-GMP-004-009 | F1J190460-009 | Soil | X |
| 06-PD1-GMP-004-010 | F1J190460-010 | Soil | X |
| 06-PD1-GMP-004-011 | F1J190460-011 | Soil | X |
| 06-PD1-GMP-004-012 | F1J190460-012 | Soil | X |
| 06-PD1-GMP-004-013 | F1J190460-013 | Soil | X |
| 06-PD1-GMP-004-014 | F1J190460-014 | Soil | X |
| 06-PD1-GMP-004-015 | F1J190460-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-004-016 | F1J190460-016 | Soil | X |
| 06-PD1-GMP-004-017 | F1J190460-017 | Soil | X |
| 06-PD1-GMP-004-018 | F1J190460-018 | Soil | X |
| 06-PD1-GMP-004-019 | F1J190460-019 | Soil | X |
| 06-PD1-GMP-004-020 | F1J190460-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190460 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 56-75 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J200000-100B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.151 pCi/g | 0.0803 pCi/g | 3.76 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-004-001 | 3.08 | Pass |
| 06-PD1-GMP-004-002 | 2.35 | Fail |
| 06-PD1-GMP-004-003 | 4.48 | Pass |
| 06-PD1-GMP-004-004 | 2.64 | Pass |
| 06-PD1-GMP-004-005 | 3.89 | Pass |
| 06-PD1-GMP-004-006 | 2.50 | Fail |
| 06-PD1-GMP-004-007 | 4.38 | Pass |
| 06-PD1-GMP-004-008 | 2.07 | Fail |
| 06-PD1-GMP-004-009 | 3.46 | Pass |
| 06-PD1-GMP-004-010 | 2.32 | Fail |
| 06-PD1-GMP-004-011 | 3.29 | Pass |
| 06-PD1-GMP-004-012 | 3.70 | Pass |
| 06-PD1-GMP-004-013 | 2.88 | Pass |
| 06-PD1-GMP-004-014 | 3.41 | Pass |
| 06-PD1-GMP-004-015 | 2.21 | Fail |
| 06-PD1-GMP-004-016 | 2.35 | Fail |
| 06-PD1-GMP-004-017 | 3.36 | Pass |
| 06-PD1-GMP-004-018 | 1.31 | Fail |
| 06-PD1-GMP-004-019 | 2.66 | Pass |
| 06-PD1-GMP-004-020 | 3.30 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-004-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190460

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-004-002 | F1J190460-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-006 | F1J190460-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-008 | F1J190460-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-010 | F1J190460-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-015 | F1J190460-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-016 | F1J190460-016 | Lead-214 | B6 | J |
| 06-PD1-GMP-004-018 | F1J190460-018 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J190461
SAMPLING DATE(S): April 07, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-009-001 | F1J190461-001 | Soil | X |
| 06-PD1-GMP-009-002 | F1J190461-002 | Soil | X |
| 06-PD1-GMP-009-003 | F1J190461-003 | Soil | X |
| 06-PD1-GMP-009-004 | F1J190461-004 | Soil | X |
| 06-PD1-GMP-009-005 | F1J190461-005 | Soil | X |
| 06-PD1-GMP-009-006 | F1J190461-006 | Soil | X |
| 06-PD1-GMP-009-007 | F1J190461-007 | Soil | X |
| 06-PD1-GMP-009-008 | F1J190461-008 | Soil | X |
| 06-PD1-GMP-009-009 | F1J190461-009 | Soil | X |
| 06-PD1-GMP-009-010 | F1J190461-010 | Soil | X |
| 06-PD1-GMP-009-011 | F1J190461-011 | Soil | X |
| 06-PD1-GMP-009-012 | F1J190461-012 | Soil | X |
| 06-PD1-GMP-009-013 | F1J190461-013 | Soil | X |
| 06-PD1-GMP-009-014 | F1J190461-014 | Soil | X |
| 06-PD1-GMP-009-015 | F1J190461-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-009-016 | F1J190461-016 | Soil | X |
| 06-PD1-GMP-009-017 | F1J190461-017 | Soil | X |
| 06-PD1-GMP-009-018 | F1J190461-018 | Soil | X |
| 06-PD1-GMP-009-019 | F1J190461-019 | Soil | X |
| 06-PD1-GMP-009-020 | F1J190461-020 | Soil | X |
| 06-PD1-GMP-009-021 | F1J190461-021 | Soil | X |
| 06-PD1-GMP-009-022 | F1J190461-022 | Soil | X |
| 06-PD1-GMP-009-023 | F1J190461-023 | Soil | X |
| 06-PD1-GMP-009-024 | F1J190461-024 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190461 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 13-41 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity for batch 1293113 exceeded the 2.58 laboratory QC limit in method blank F1J200000-113B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.1239 pCi/g | 0.0703 pCi/g | 3.52 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-009-001 | 3.26 | Pass |
| 06-PD1-GMP-009-002 | 2.43 | Fail |
| 06-PD1-GMP-009-003 | 3.84 | Pass |
| 06-PD1-GMP-009-004 | 3.23 | Pass |
| 06-PD1-GMP-009-005 | 2.77 | Pass |
| 06-PD1-GMP-009-006 | 2.36 | Fail |
| 06-PD1-GMP-009-007 | 2.44 | Fail |
| 06-PD1-GMP-009-008 | 1.68 | Fail |
| 06-PD1-GMP-009-009 | 2.81 | Pass |
| 06-PD1-GMP-009-010 | 2.38 | Fail |
| 06-PD1-GMP-009-011 | 3.14 | Pass |
| 06-PD1-GMP-009-012 | 2.44 | Fail |
| 06-PD1-GMP-009-013 | 2.98 | Pass |
| 06-PD1-GMP-009-014 | 3.67 | Pass |
| 06-PD1-GMP-009-015 | 2.94 | Pass |
| 06-PD1-GMP-009-016 | 1.14 | Fail |
| 06-PD1-GMP-009-017 | 2.96 | Pass |
| 06-PD1-GMP-009-018 | 3.28 | Pass |
| 06-PD1-GMP-009-019 | 3.02 | Pass |
| 06-PD1-GMP-009-020 | 1.13 | Fail |

The blank activity for batch 1294024 exceeded the 2.58 laboratory QC limit in method blank F1J100000-024B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.1241 pCi/g | 0.0916 pCi/g | 2.71 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-009-021 | 1.92 | Fail |
| 06-PD1-GMP-009-022 | 3.53 | Pass |
| 06-PD1-GMP-009-023 | 3.87 | Pass |
| 06-PD1-GMP-009-024 | 3.15 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-009-001 and 06-PD1-GMP-009-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190461

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-009-002 | F1J190461-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-006 | F1J190461-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-007 | F1J190461-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-008 | F1J190461-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-010 | F1J190461-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-012 | F1J190461-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-016 | F1J190461-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-020 | F1J190461-020 | Lead-214 | B6 | J |
| 06-PD1-GMP-009-021 | F1J190461-021 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1J190464
SAMPLING DATE(S): March 29, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-027-001 | F1J190464-001 | Soil | X |
| 06-PD1-GMP-027-002 | F1J190464-002 | Soil | X |
| 06-PD1-GMP-027-003 | F1J190464-003 | Soil | X |
| 06-PD1-GMP-027-004 | F1J190464-004 | Soil | X |
| 06-PD1-GMP-027-005 | F1J190464-005 | Soil | X |
| 06-PD1-GMP-027-006 | F1J190464-006 | Soil | X |
| 06-PD1-GMP-027-007 | F1J190464-007 | Soil | X |
| 06-PD1-GMP-027-008 | F1J190464-008 | Soil | X |
| 06-PD1-GMP-027-009 | F1J190464-009 | Soil | X |
| 06-PD1-GMP-027-010 | F1J190464-010 | Soil | X |
| 06-PD1-GMP-027-011 | F1J190464-011 | Soil | X |
| 06-PD1-GMP-027-012 | F1J190464-012 | Soil | X |
| 06-PD1-GMP-027-013 | F1J190464-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-027-014 | F1J190464-014 | Soil | X |
| 06-PD1-GMP-027-015 | F1J190464-015 | Soil | X |
| 06-PD1-GMP-027-016 | F1J190464-016 | Soil | X |
| 06-PD1-GMP-027-017 | F1J190464-017 | Soil | X |
| 06-PD1-GMP-027-018 | F1J190464-018 | Soil | X |
| 06-PD1-GMP-027-019 | F1J190464-019 | Soil | X |
| 06-PD1-GMP-027-020 | F1J190464-020 | Soil | X |
| 06-PD1-GMP-027-021 | F1J190464-021 | Soil | X |
| 06-PD1-GMP-027-022 | F1J190464-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190464 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 26-57 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J200000-114B (batch 1293114) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.1905 pCi/g | 0.0803 pCi/g | 4.74 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-027-001 | 2.97 | Pass |
| 06-PD1-GMP-027-002 | 3.31 | Pass |
| 06-PD1-GMP-027-003 | 1.95 | Fail |
| 06-PD1-GMP-027-004 | 2.15 | Fail |
| 06-PD1-GMP-027-005 | 2.66 | Pass |
| 06-PD1-GMP-027-006 | 2.45 | Fail |
| 06-PD1-GMP-027-007 | 2.88 | Pass |
| 06-PD1-GMP-027-008 | 2.42 | Fail |
| 06-PD1-GMP-027-009 | 2.19 | Fail |
| 06-PD1-GMP-027-010 | 1.97 | Fail |
| 06-PD1-GMP-027-011 | 1.48 | Fail |
| 06-PD1-GMP-027-012 | 3.42 | Pass |
| 06-PD1-GMP-027-013 | 2.64 | Pass |
| 06-PD1-GMP-027-014 | 3.00 | Pass |
| 06-PD1-GMP-027-015 | 2.93 | Pass |
| 06-PD1-GMP-027-016 | 2.96 | Pass |
| 06-PD1-GMP-027-017 | 2.78 | Pass |
| 06-PD1-GMP-027-018 | 3.31 | Pass |
| 06-PD1-GMP-027-019 | 3.05 | Pass |
| 06-PD1-GMP-027-020 | 1.31 | Fail |

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J210000-024B (batch 1294024) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.124 pCi/g | 0.0916 pCi/g | 2.71 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-027-021 | 3.77 | Pass |
| 06-PD1-GMP-027-022 | 2.40 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-027-001 of this SDG and 06-PD1-GMP-009-021 of SDG F1J190461. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190464

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-027-003 | F1J190464-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-004 | F1J190464-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-006 | F1J190464-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-008 | F1J190464-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-009 | F1J190464-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-010 | F1J190464-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-011 | F1J190464-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-020 | F1J190464-020 | Lead-214 | B6 | J |
| 06-PD1-GMP-027-022 | F1J190464-022 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1J190465
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-013-001 | F1J190465-001 | Soil | X |
| 06-PD1-GMP-013-002 | F1J190465-002 | Soil | X |
| 06-PD1-GMP-013-003 | F1J190465-003 | Soil | X |
| 06-PD1-GMP-013-004 | F1J190465-004 | Soil | X |
| 06-PD1-GMP-013-005 | F1J190465-005 | Soil | X |
| 06-PD1-GMP-013-006 | F1J190465-006 | Soil | X |
| 06-PD1-GMP-013-007 | F1J190465-007 | Soil | X |
| 06-PD1-GMP-013-008 | F1J190465-008 | Soil | X |
| 06-PD1-GMP-013-009 | F1J190465-009 | Soil | X |
| 06-PD1-GMP-013-010 | F1J190465-010 | Soil | X |
| 06-PD1-GMP-013-011 | F1J190465-011 | Soil | X |
| 06-PD1-GMP-013-012 | F1J190465-012 | Soil | X |
| 06-PD1-GMP-013-013 | F1J190465-013 | Soil | X |
| 06-PD1-GMP-013-014 | F1J190465-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-013-015 | F1J190465-015 | Soil | X |
| 06-PD1-GMP-013-016 | F1J190465-016 | Soil | X |
| 06-PD1-GMP-013-017 | F1J190465-017 | Soil | X |
| 06-PD1-GMP-013-018 | F1J190465-018 | Soil | X |
| 06-PD1-GMP-013-019 | F1J190465-019 | Soil | X |
| 06-PD1-GMP-013-020 | F1J190465-020 | Soil | X |
| 06-PD1-GMP-013-021 | F1J190465-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 19-45 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements for method blank F1J200000-115B. No data qualification was necessary.

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J210000-024B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.124 pCi/g | 0.0916 pCi/g | 2.71 |

Z_{DER} was calculated to determine the relative difference of the sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample was demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) and did not require data qualification.

| | | |
|-------------------------|--------------|------------------|
| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
| 06-PD1-GMP-013-021 | 2.80 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-013-001 of this SDG and sample 06-PD1-GMP-009-021 of SDG F1J190461. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190465

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J190467
SAMPLING DATE(S): February 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-005-001 | F1J190467-001 | Soil | X |
| 06-PD1-GMP-005-002 | F1J190467-002 | Soil | X |
| 06-PD1-GMP-005-003 | F1J190467-003 | Soil | X |
| 06-PD1-GMP-005-004 | F1J190467-004 | Soil | X |
| 06-PD1-GMP-005-005 | F1J190467-005 | Soil | X |
| 06-PD1-GMP-005-006 | F1J190467-006 | Soil | X |
| 06-PD1-GMP-005-007 | F1J190467-007 | Soil | X |
| 06-PD1-GMP-005-008 | F1J190467-008 | Soil | X |
| 06-PD1-GMP-005-009 | F1J190467-009 | Soil | X |
| 06-PD1-GMP-005-010 | F1J190467-010 | Soil | X |
| 06-PD1-GMP-005-011 | F1J190467-011 | Soil | X |
| 06-PD1-GMP-005-012 | F1J190467-012 | Soil | X |
| 06-PD1-GMP-005-013 | F1J190467-013 | Soil | X |
| 06-PD1-GMP-005-014 | F1J190467-014 | Soil | X |
| 06-PD1-GMP-005-015 | F1J190467-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-005-016 | F1J190467-016 | Soil | X |
| 06-PD1-GMP-005-017 | F1J190467-017 | Soil | X |
| 06-PD1-GMP-005-018 | F1J190467-018 | Soil | X |
| 06-PD1-GMP-005-019 | F1J190467-019 | Soil | X |
| 06-PD1-GMP-005-020 | F1J190467-020 | Soil | X |
| 06-PD1-GMP-005-021 | F1J190467-021 | Soil | X |
| 06-PD1-GMP-005-022 | F1J190467-022 | Soil | X |
| 06-PD1-GMP-005-023 | F1J190467-023 | Soil | X |
| 06-PD1-GMP-005-024 | F1J190467-024 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190467 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 56-76 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank criteria for batch 1293116 met laboratory requirements. No data qualification was necessary.

The blank activity for batch 1294024 exceeded the 2.58 laboratory QC limit in method blank F1J100000-024B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.124 pCi/g | 0.0916 pCi/g | 2.71 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-005-021 | 1.53 | Fail |
| 06-PD1-GMP-005-022 | 2.63 | Pass |
| 06-PD1-GMP-005-023 | 1.13 | Fail |
| 06-PD1-GMP-005-024 | 2.99 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-005-001 of this SDG and 06-PD1-GMP-009-021 of SDG F1J190461. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190467

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-005-021 | F1J190467-021 | Lead-214 | B6 | J |
| 06-PD1-GMP-005-023 | F1J190467-023 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 15, 2012

SDG NUMBER: F1J190469
SAMPLING DATE(S): April 07, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-010-003 | F1J190469-001 | Soil | X |
| 06-PD1-GMP-010-008 | F1J190469-002 | Soil | X |
| 06-PD1-GMP-010-017 | F1J190469-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J190469 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-010-003 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J190469

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F1J250471
SAMPLING DATE(S): April 06, 2011 - April 18, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-061-007 | F1J250471-001 | Soil | X |
| 06-PD1-GMP-062-005 | F1J250471-002 | Soil | X |
| 06-PD1-GMP-062-008 | F1J250471-003 | Soil | X |
| 06-PD1-GMP-062-020 | F1J250471-004 | Soil | X |
| 06-PD1-GMP-063-004 | F1J250471-005 | Soil | X |
| 06-PD1-GMP-063-006 | F1J250471-006 | Soil | X |
| 06-PD1-GMP-064-001 | F1J250471-007 | Soil | X |
| 06-PD1-GMP-064-004 | F1J250471-008 | Soil | X |
| 06-PD1-GMP-064-011 | F1J250471-009 | Soil | X |
| 06-PD1-GMP-065-003 | F1J250471-010 | Soil | X |
| 06-PD1-GMP-065-007 | F1J250471-011 | Soil | X |
| 06-PD1-GMP-065-020 | F1J250471-012 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250471 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criterion of 180 days by 20-32 days. Due to the relatively long half-life of Strontium-90 (28.6 years), this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-061-007 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250471

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1J250473
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-033-001 | F1J250473-001 | Soil | X |
| 06-PD1-GMP-033-002 | F1J250473-002 | Soil | X |
| 06-PD1-GMP-033-003 | F1J250473-003 | Soil | X |
| 06-PD1-GMP-033-004 | F1J250473-004 | Soil | X |
| 06-PD1-GMP-033-005 | F1J250473-005 | Soil | X |
| 06-PD1-GMP-033-006 | F1J250473-006 | Soil | X |
| 06-PD1-GMP-033-007 | F1J250473-007 | Soil | X |
| 06-PD1-GMP-033-008 | F1J250473-008 | Soil | X |
| 06-PD1-GMP-033-009 | F1J250473-009 | Soil | X |
| 06-PD1-GMP-033-010 | F1J250473-010 | Soil | X |
| 06-PD1-GMP-033-011 | F1J250473-011 | Soil | X |
| 06-PD1-GMP-033-012 | F1J250473-012 | Soil | X |
| 06-PD1-GMP-033-013 | F1J250473-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-033-014 | F1J250473-014 | Soil | X |
| 06-PD1-GMP-033-015 | F1J250473-015 | Soil | X |
| 06-PD1-GMP-033-016 | F1J250473-016 | Soil | X |
| 06-PD1-GMP-033-017 | F1J250473-017 | Soil | X |
| 06-PD1-GMP-033-018 | F1J250473-018 | Soil | X |
| 06-PD1-GMP-033-019 | F1J250473-019 | Soil | X |
| 06-PD1-GMP-033-020 | F1J250473-020 | Soil | X |
| 06-PD1-GMP-033-021 | F1J250473-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250473 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 29-48 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-033-001 of this SDG and 06-PD1-GMP-024-021 of SDG F1J250469. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250473

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1J250475
SAMPLING DATE(S): April 08, 2011 - April 16, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-037-004 | F1J250475-003 | Soil | X |
| 06-PD1-GMP-037-009 | F1J250475-004 | Soil | X |
| 06-PD1-GMP-037-019 | F1J250475-005 | Soil | X |
| 06-PD1-GMP-038-005 | F1J250475-006 | Soil | X |
| 06-PD1-GMP-038-010 | F1J250475-007 | Soil | X |
| 06-PD1-GMP-038-017 | F1J250475-008 | Soil | X |
| 06-PD1-GMP-041-006 | F1J250475-012 | Soil | X |
| 06-PD1-GMP-041-016 | F1J250475-013 | Soil | X |
| 06-PD1-GMP-041-018 | F1J250475-014 | Soil | X |
| 06-PD1-GMP-054-004 | F1J250475-015 | Soil | X |
| 06-PD1-GMP-054-005 | F1J250475-016 | Soil | X |
| 06-PD1-GMP-054-018 | F1J250475-017 | Soil | X |
| 06-PD1-GMP-055-001 | F1J250475-018 | Soil | X |

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-055-002 | F1J250475-019 | Soil | X |
| 06-PD1-GMP-055-019 | F1J250475-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250475 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 20-31 days. Due to the relatively long half-lives of the analytes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-038-005 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250475

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012
SDG NUMBER: F1J250479
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-038-001 | F1J250479-001 | Soil | X |
| 06-PD1-GMP-038-002 | F1J250479-002 | Soil | X |
| 06-PD1-GMP-038-003 | F1J250479-003 | Soil | X |
| 06-PD1-GMP-038-004 | F1J250479-004 | Soil | X |
| 06-PD1-GMP-038-005 | F1J250479-005 | Soil | X |
| 06-PD1-GMP-038-006 | F1J250479-006 | Soil | X |
| 06-PD1-GMP-038-007 | F1J250479-007 | Soil | X |
| 06-PD1-GMP-038-008 | F1J250479-008 | Soil | X |
| 06-PD1-GMP-038-009 | F1J250479-009 | Soil | X |
| 06-PD1-GMP-038-010 | F1J250479-010 | Soil | X |
| 06-PD1-GMP-038-011 | F1J250479-011 | Soil | X |
| 06-PD1-GMP-038-012 | F1J250479-012 | Soil | X |
| 06-PD1-GMP-038-013 | F1J250479-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-038-014 | F1J250479-014 | Soil | X |
| 06-PD1-GMP-038-015 | F1J250479-015 | Soil | X |
| 06-PD1-GMP-038-016 | F1J250479-016 | Soil | X |
| 06-PD1-GMP-038-017 | F1J250479-017 | Soil | X |
| 06-PD1-GMP-038-018 | F1J250479-018 | Soil | X |
| 06-PD1-GMP-038-019 | F1J250479-019 | Soil | X |
| 06-PD1-GMP-038-020 | F1J250479-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250479 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 18-35 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-038-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250479

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1J250481
SAMPLING DATE(S): March 25, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-016-001 | F1J250481-001 | Soil | X |
| 06-PD1-GMP-016-002 | F1J250481-002 | Soil | X |
| 06-PD1-GMP-016-003 | F1J250481-003 | Soil | X |
| 06-PD1-GMP-016-004 | F1J250481-004 | Soil | X |
| 06-PD1-GMP-016-005 | F1J250481-005 | Soil | X |
| 06-PD1-GMP-016-006 | F1J250481-006 | Soil | X |
| 06-PD1-GMP-016-007 | F1J250481-007 | Soil | X |
| 06-PD1-GMP-016-008 | F1J250481-008 | Soil | X |
| 06-PD1-GMP-016-009 | F1J250481-009 | Soil | X |
| 06-PD1-GMP-016-010 | F1J250481-010 | Soil | X |
| 06-PD1-GMP-016-011 | F1J250481-011 | Soil | X |
| 06-PD1-GMP-016-012 | F1J250481-012 | Soil | X |
| 06-PD1-GMP-016-013 | F1J250481-013 | Soil | X |
| 06-PD1-GMP-016-014 | F1J250481-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-016-015 | F1J250481-015 | Soil | X |
| 06-PD1-GMP-016-016 | F1J250481-016 | Soil | X |
| 06-PD1-GMP-016-017 | F1J250481-017 | Soil | X |
| 06-PD1-GMP-016-018 | F1J250481-018 | Soil | X |
| 06-PD1-GMP-016-019 | F1J250481-019 | Soil | X |
| 06-PD1-GMP-016-020 | F1J250481-020 | Soil | X |
| 06-PD1-GMP-016-021 | F1J250481-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250481 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 33-57 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-016-001 of this SDG and sample F1J250469-021 of SDG F1J250469. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250481

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012

SDG NUMBER: F1J250482
SAMPLING DATE(S): April 06, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-061-001 | F1J250482-001 | Soil | X |
| 06-PD1-GMP-061-002 | F1J250482-002 | Soil | X |
| 06-PD1-GMP-061-003 | F1J250482-003 | Soil | X |
| 06-PD1-GMP-061-004 | F1J250482-004 | Soil | X |
| 06-PD1-GMP-061-005 | F1J250482-005 | Soil | X |
| 06-PD1-GMP-061-006 | F1J250482-006 | Soil | X |
| 06-PD1-GMP-061-007 | F1J250482-007 | Soil | X |
| 06-PD1-GMP-061-008 | F1J250482-008 | Soil | X |
| 06-PD1-GMP-061-009 | F1J250482-009 | Soil | X |
| 06-PD1-GMP-061-010 | F1J250482-010 | Soil | X |
| 06-PD1-GMP-061-011 | F1J250482-011 | Soil | X |
| 06-PD1-GMP-061-012 | F1J250482-012 | Soil | X |
| 06-PD1-GMP-061-013 | F1J250482-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-061-014 | F1J250482-014 | Soil | X |
| 06-PD1-GMP-061-015 | F1J250482-015 | Soil | X |
| 06-PD1-GMP-061-016 | F1J250482-016 | Soil | X |
| 06-PD1-GMP-061-017 | F1J250482-017 | Soil | X |
| 06-PD1-GMP-061-018 | F1J250482-018 | Soil | X |
| 06-PD1-GMP-061-019 | F1J250482-019 | Soil | X |
| 06-PD1-GMP-061-020 | F1J250482-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250482 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criterion of 180 days by 28-44 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J310000-058B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.192 pCi/g | 0.0726 pCi/g | 5.28 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-061-001 | 3.04 | Pass |
| 06-PD1-GMP-061-002 | 1.17 | Fail |
| 06-PD1-GMP-061-003 | 3.74 | Pass |
| 06-PD1-GMP-061-004 | 2.54 | Fail |
| 06-PD1-GMP-061-005 | 2.81 | Pass |
| 06-PD1-GMP-061-006 | 2.95 | Pass |
| 06-PD1-GMP-061-007 | 1.78 | Fail |
| 06-PD1-GMP-061-008 | 3.49 | Pass |
| 06-PD1-GMP-061-009 | 3.10 | Pass |
| 06-PD1-GMP-061-010 | 1.95 | Fail |
| 06-PD1-GMP-061-011 | 3.04 | Pass |
| 06-PD1-GMP-061-012 | 3.17 | Pass |
| 06-PD1-GMP-061-013 | 0.29 | Fail |
| 06-PD1-GMP-061-014 | 2.81 | Pass |
| 06-PD1-GMP-061-015 | 1.65 | Fail |
| 06-PD1-GMP-061-016 | 2.40 | Fail |
| 06-PD1-GMP-061-017 | 2.95 | Pass |
| 06-PD1-GMP-061-018 | 2.33 | Fail |
| 06-PD1-GMP-061-019 | 3.54 | Pass |
| 06-PD1-GMP-061-020 | 1.45 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-061-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1J250482

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-061-002 | F1J250482-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-004 | F1J250482-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-007 | F1J250482-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-010 | F1J250482-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-013 | F1J250482-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-015 | F1J250482-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-016 | F1J250482-016 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-018 | F1J250482-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-061-020 | F1J250482-020 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012

SDG NUMBER: F1J250484
SAMPLING DATE(S): April 06, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-062-001 | F1J250484-001 | Soil | X |
| 06-PD1-GMP-062-002 | F1J250484-002 | Soil | X |
| 06-PD1-GMP-062-003 | F1J250484-003 | Soil | X |
| 06-PD1-GMP-062-004 | F1J250484-004 | Soil | X |
| 06-PD1-GMP-062-005 | F1J250484-005 | Soil | X |
| 06-PD1-GMP-062-006 | F1J250484-006 | Soil | X |
| 06-PD1-GMP-062-007 | F1J250484-007 | Soil | X |
| 06-PD1-GMP-062-008 | F1J250484-008 | Soil | X |
| 06-PD1-GMP-062-009 | F1J250484-009 | Soil | X |
| 06-PD1-GMP-062-010 | F1J250484-010 | Soil | X |
| 06-PD1-GMP-062-011 | F1J250484-011 | Soil | X |
| 06-PD1-GMP-062-012 | F1J250484-012 | Soil | X |
| 06-PD1-GMP-062-013 | F1J250484-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-062-014 | F1J250484-014 | Soil | X |
| 06-PD1-GMP-062-015 | F1J250484-015 | Soil | X |
| 06-PD1-GMP-062-016 | F1J250484-016 | Soil | X |
| 06-PD1-GMP-062-017 | F1J250484-017 | Soil | X |
| 06-PD1-GMP-062-018 | F1J250484-018 | Soil | X |
| 06-PD1-GMP-062-019 | F1J250484-019 | Soil | X |
| 06-PD1-GMP-062-020 | F1J250484-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250484 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criterion of 180 days by 28-46 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-062-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250484

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1J250486
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-041-001 | F1J250486-001 | Soil | X |
| 06-PD1-GMP-041-002 | F1J250486-002 | Soil | X |
| 06-PD1-GMP-041-003 | F1J250486-003 | Soil | X |
| 06-PD1-GMP-041-004 | F1J250486-004 | Soil | X |
| 06-PD1-GMP-041-005 | F1J250486-005 | Soil | X |
| 06-PD1-GMP-041-006 | F1J250486-006 | Soil | X |
| 06-PD1-GMP-041-007 | F1J250486-007 | Soil | X |
| 06-PD1-GMP-041-008 | F1J250486-008 | Soil | X |
| 06-PD1-GMP-041-009 | F1J250486-009 | Soil | X |
| 06-PD1-GMP-041-010 | F1J250486-010 | Soil | X |
| 06-PD1-GMP-041-011 | F1J250486-011 | Soil | X |
| 06-PD1-GMP-041-012 | F1J250486-012 | Soil | X |
| 06-PD1-GMP-041-013 | F1J250486-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-041-014 | F1J250486-014 | Soil | X |
| 06-PD1-GMP-041-015 | F1J250486-015 | Soil | X |
| 06-PD1-GMP-041-016 | F1J250486-016 | Soil | X |
| 06-PD1-GMP-041-017 | F1J250486-017 | Soil | X |
| 06-PD1-GMP-041-018 | F1J250486-018 | Soil | X |
| 06-PD1-GMP-041-019 | F1J250486-019 | Soil | X |
| 06-PD1-GMP-041-020 | F1J250486-020 | Soil | X |
| 06-PD1-GMP-041-021 | F1J250486-021 | Soil | X |
| 06-PD1-GMP-041-022 | F1J250486-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250486 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 19-35 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J280000-165B (batch 1301165) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0971 pCi/g | 0.0680 pCi/g | 2.86 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-041-001 | 2.24 | Fail |
| 06-PD1-GMP-041-002 | 1.77 | Fail |
| 06-PD1-GMP-041-003 | 2.39 | Fail |
| 06-PD1-GMP-041-004 | 1.69 | Fail |
| 06-PD1-GMP-041-005 | 2.91 | Pass |
| 06-PD1-GMP-041-006 | 2.25 | Fail |
| 06-PD1-GMP-041-007 | 3.82 | Pass |
| 06-PD1-GMP-041-008 | 1.61 | Fail |
| 06-PD1-GMP-041-009 | 0.15 | Fail |
| 06-PD1-GMP-041-010 | 3.67 | Pass |
| 06-PD1-GMP-041-011 | 1.01 | Fail |
| 06-PD1-GMP-041-012 | 2.08 | Fail |
| 06-PD1-GMP-041-013 | 1.88 | Fail |
| 06-PD1-GMP-041-014 | non-detect | N/A |
| 06-PD1-GMP-041-015 | 2.75 | Pass |
| 06-PD1-GMP-041-016 | 2.91 | Pass |
| 06-PD1-GMP-041-017 | 2.16 | Fail |
| 06-PD1-GMP-041-018 | 3.19 | Pass |
| 06-PD1-GMP-041-019 | 0.41 | Fail |
| 06-PD1-GMP-041-020 | 2.63 | Pass |

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J280000-166B (batch 1301166) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0689 pCi/g | 0.0469 pCi/g | 2.93 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-041-021 | 2.54 | Fail |
| 06-PD1-GMP-041-022 | 0.99 | Fail |

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J280000-166B (batch 1301166) for the following isotopes:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Bismuth-214 | 0.107 pCi/g | 0.0726 pCi/g | 2.86 |
| Radium-226 | 0.107 pCi/g | 0.0726 pCi/g | 2.86 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-041-021 | 1.32 | Fail |
| 06-PD1-GMP-041-022 | 1.07 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-041-001 and 06-PD1-GMP-041-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250486

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|---------------------------------------|--------------------|----------------------------|
| 06-PD1-GMP-041-001 | F1J250486-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-002 | F1J250486-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-003 | F1J250486-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-004 | F1J250486-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-006 | F1J250486-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-008 | F1J250486-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-009 | F1J250486-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-011 | F1J250486-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-012 | F1J250486-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-013 | F1J250486-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-017 | F1J250486-017 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-019 | F1J250486-019 | Lead-214 | B6 | J |
| 06-PD1-GMP-041-021 | F1J250486-021 | Lead-214 Radium-226 Bismuth-214 | B6 | J |
| 06-PD1-GMP-041-022 | F1J250486-022 | Lead-214 Radium-226 Bismuth-214 | B6 | J |

VALIDATA

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4070 Balleycastle Lane, Duluth, GA 30097

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012

SDG NUMBER: F1J250489
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-064-001 | F1J250489-001 | Soil | X |
| 06-PD1-GMP-064-002 | F1J250489-002 | Soil | X |
| 06-PD1-GMP-064-003 | F1J250489-003 | Soil | X |
| 06-PD1-GMP-064-004 | F1J250489-004 | Soil | X |
| 06-PD1-GMP-064-005 | F1J250489-005 | Soil | X |
| 06-PD1-GMP-064-006 | F1J250489-006 | Soil | X |
| 06-PD1-GMP-064-007 | F1J250489-007 | Soil | X |
| 06-PD1-GMP-064-008 | F1J250489-008 | Soil | X |
| 06-PD1-GMP-064-009 | F1J250489-009 | Soil | X |
| 06-PD1-GMP-064-010 | F1J250489-010 | Soil | X |
| 06-PD1-GMP-064-011 | F1J250489-011 | Soil | X |
| 06-PD1-GMP-064-012 | F1J250489-012 | Soil | X |
| 06-PD1-GMP-064-013 | F1J250489-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-064-014 | F1J250489-014 | Soil | X |
| 06-PD1-GMP-064-015 | F1J250489-015 | Soil | X |
| 06-PD1-GMP-064-016 | F1J250489-016 | Soil | X |
| 06-PD1-GMP-064-017 | F1J250489-017 | Soil | X |
| 06-PD1-GMP-064-018 | F1J250489-018 | Soil | X |
| 06-PD1-GMP-064-019 | F1J250489-019 | Soil | X |
| 06-PD1-GMP-064-020 | F1J250489-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250489 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criterion of 180 days by 19-28 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-064-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250489

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012

SDG NUMBER: F1J250490
SAMPLING DATE(S): April 18, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-065-001 | F1J250490-001 | Soil | X |
| 06-PD1-GMP-065-002 | F1J250490-002 | Soil | X |
| 06-PD1-GMP-065-003 | F1J250490-003 | Soil | X |
| 06-PD1-GMP-065-004 | F1J250490-004 | Soil | X |
| 06-PD1-GMP-065-005 | F1J250490-005 | Soil | X |
| 06-PD1-GMP-065-006 | F1J250490-006 | Soil | X |
| 06-PD1-GMP-065-007 | F1J250490-007 | Soil | X |
| 06-PD1-GMP-065-008 | F1J250490-008 | Soil | X |
| 06-PD1-GMP-065-009 | F1J250490-009 | Soil | X |
| 06-PD1-GMP-065-010 | F1J250490-010 | Soil | X |
| 06-PD1-GMP-065-011 | F1J250490-011 | Soil | X |
| 06-PD1-GMP-065-012 | F1J250490-012 | Soil | X |
| 06-PD1-GMP-065-013 | F1J250490-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-065-014 | F1J250490-014 | Soil | X |
| 06-PD1-GMP-065-015 | F1J250490-015 | Soil | X |
| 06-PD1-GMP-065-016 | F1J250490-016 | Soil | X |
| 06-PD1-GMP-065-017 | F1J250490-017 | Soil | X |
| 06-PD1-GMP-065-018 | F1J250490-018 | Soil | X |
| 06-PD1-GMP-065-019 | F1J250490-019 | Soil | X |
| 06-PD1-GMP-065-020 | F1J250490-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250490 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 17-26 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-065-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250490

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012
SDG NUMBER: F1J250492
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-055-001 | F1J250492-001 | Soil | X |
| 06-PD1-GMP-055-002 | F1J250492-002 | Soil | X |
| 06-PD1-GMP-055-003 | F1J250492-003 | Soil | X |
| 06-PD1-GMP-055-004 | F1J250492-004 | Soil | X |
| 06-PD1-GMP-055-005 | F1J250492-005 | Soil | X |
| 06-PD1-GMP-055-006 | F1J250492-006 | Soil | X |
| 06-PD1-GMP-055-007 | F1J250492-007 | Soil | X |
| 06-PD1-GMP-055-008 | F1J250492-008 | Soil | X |
| 06-PD1-GMP-055-009 | F1J250492-009 | Soil | X |
| 06-PD1-GMP-055-010 | F1J250492-010 | Soil | X |
| 06-PD1-GMP-055-011 | F1J250492-011 | Soil | X |
| 06-PD1-GMP-055-012 | F1J250492-012 | Soil | X |
| 06-PD1-GMP-055-013 | F1J250492-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-055-014 | F1J250492-014 | Soil | X |
| 06-PD1-GMP-055-015 | F1J250492-015 | Soil | X |
| 06-PD1-GMP-055-016 | F1J250492-016 | Soil | X |
| 06-PD1-GMP-055-017 | F1J250492-017 | Soil | X |
| 06-PD1-GMP-055-018 | F1J250492-018 | Soil | X |
| 06-PD1-GMP-055-019 | F1J250492-019 | Soil | X |
| 06-PD1-GMP-055-020 | F1J250492-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250492 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 18-36 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-055-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250492

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1J250494
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-032-001 | F1J250494-001 | Soil | X |
| 06-PD1-GMP-032-002 | F1J250494-002 | Soil | X |
| 06-PD1-GMP-032-003 | F1J250494-003 | Soil | X |
| 06-PD1-GMP-032-004 | F1J250494-004 | Soil | X |
| 06-PD1-GMP-032-005 | F1J250494-005 | Soil | X |
| 06-PD1-GMP-032-006 | F1J250494-006 | Soil | X |
| 06-PD1-GMP-032-007 | F1J250494-007 | Soil | X |
| 06-PD1-GMP-032-008 | F1J250494-008 | Soil | X |
| 06-PD1-GMP-032-009 | F1J250494-009 | Soil | X |
| 06-PD1-GMP-032-010 | F1J250494-010 | Soil | X |
| 06-PD1-GMP-032-011 | F1J250494-011 | Soil | X |
| 06-PD1-GMP-032-012 | F1J250494-012 | Soil | X |
| 06-PD1-GMP-032-013 | F1J250494-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-032-014 | F1J250494-014 | Soil | X |
| 06-PD1-GMP-032-015 | F1J250494-015 | Soil | X |
| 06-PD1-GMP-032-016 | F1J250494-016 | Soil | X |
| 06-PD1-GMP-032-017 | F1J250494-017 | Soil | X |
| 06-PD1-GMP-032-018 | F1J250494-018 | Soil | X |
| 06-PD1-GMP-032-019 | F1J250494-019 | Soil | X |
| 06-PD1-GMP-032-020 | F1J250494-020 | Soil | X |
| 06-PD1-GMP-032-021 | F1J250494-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250494 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 32-50 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1J310000-062B (batch 1304062) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.167 pCi/g | 0.0809 pCi/g | 4.12 |

Z_{DER} was calculated to determine the relative difference of sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample that was demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| | | |
|-------------------------|--------------|------------------|
| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
| 06-PD1-GMP-032-021 | 1.77 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-032-001 and 06-PD1-GMP-032-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250494

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-032-021 | F1J250494-021 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012
SDG NUMBER: F1J250496
SAMPLING DATE(S): April 08, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-037-001 | F1J250496-001 | Soil | X |
| 06-PD1-GMP-037-002 | F1J250496-002 | Soil | X |
| 06-PD1-GMP-037-003 | F1J250496-003 | Soil | X |
| 06-PD1-GMP-037-004 | F1J250496-004 | Soil | X |
| 06-PD1-GMP-037-005 | F1J250496-005 | Soil | X |
| 06-PD1-GMP-037-006 | F1J250496-006 | Soil | X |
| 06-PD1-GMP-037-007 | F1J250496-007 | Soil | X |
| 06-PD1-GMP-037-008 | F1J250496-008 | Soil | X |
| 06-PD1-GMP-037-009 | F1J250496-009 | Soil | X |
| 06-PD1-GMP-037-010 | F1J250496-010 | Soil | X |
| 06-PD1-GMP-037-011 | F1J250496-011 | Soil | X |
| 06-PD1-GMP-037-012 | F1J250496-012 | Soil | X |
| 06-PD1-GMP-037-013 | F1J250496-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-037-014 | F1J250496-014 | Soil | X |
| 06-PD1-GMP-037-015 | F1J250496-015 | Soil | X |
| 06-PD1-GMP-037-016 | F1J250496-016 | Soil | X |
| 06-PD1-GMP-037-017 | F1J250496-017 | Soil | X |
| 06-PD1-GMP-037-018 | F1J250496-018 | Soil | X |
| 06-PD1-GMP-037-019 | F1J250496-019 | Soil | X |
| 06-PD1-GMP-037-020 | F1J250496-020 | Soil | X |
| 06-PD1-GMP-037-021 | F1J250496-021 | Soil | X |
| 06-PD1-GMP-037-022 | F1J250496-022 | Soil | X |
| 06-PD1-GMP-037-023 | F1J250496-023 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250496 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 22-36 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary. Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-037-001 and 06-PD1-GMP-037-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250496

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1J250499
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-054-001 | F1J250499-001 | Soil | X |
| 06-PD1-GMP-054-002 | F1J250499-002 | Soil | X |
| 06-PD1-GMP-054-003 | F1J250499-003 | Soil | X |
| 06-PD1-GMP-054-004 | F1J250499-004 | Soil | X |
| 06-PD1-GMP-054-005 | F1J250499-005 | Soil | X |
| 06-PD1-GMP-054-006 | F1J250499-006 | Soil | X |
| 06-PD1-GMP-054-007 | F1J250499-007 | Soil | X |
| 06-PD1-GMP-054-008 | F1J250499-008 | Soil | X |
| 06-PD1-GMP-054-009 | F1J250499-009 | Soil | X |
| 06-PD1-GMP-054-010 | F1J250499-010 | Soil | X |
| 06-PD1-GMP-054-011 | F1J250499-011 | Soil | X |
| 06-PD1-GMP-054-012 | F1J250499-012 | Soil | X |
| 06-PD1-GMP-054-013 | F1J250499-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-054-014 | F1J250499-014 | Soil | X |
| 06-PD1-GMP-054-015 | F1J250499-015 | Soil | X |
| 06-PD1-GMP-054-016 | F1J250499-016 | Soil | X |
| 06-PD1-GMP-054-017 | F1J250499-017 | Soil | X |
| 06-PD1-GMP-054-018 | F1J250499-018 | Soil | X |
| 06-PD1-GMP-054-019 | F1J250499-019 | Soil | X |
| 06-PD1-GMP-054-020 | F1J250499-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250499 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 14-28 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-054-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250499

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012
SDG NUMBER: F1J250501
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-063-001 | F1J250501-001 | Soil | X |
| 06-PD1-GMP-063-002 | F1J250501-002 | Soil | X |
| 06-PD1-GMP-063-003 | F1J250501-003 | Soil | X |
| 06-PD1-GMP-063-004 | F1J250501-004 | Soil | X |
| 06-PD1-GMP-063-005 | F1J250501-005 | Soil | X |
| 06-PD1-GMP-063-006 | F1J250501-006 | Soil | X |
| 06-PD1-GMP-063-007 | F1J250501-007 | Soil | X |
| 06-PD1-GMP-063-008 | F1J250501-008 | Soil | X |
| 06-PD1-GMP-063-009 | F1J250501-009 | Soil | X |
| 06-PD1-GMP-063-010 | F1J250501-010 | Soil | X |
| 06-PD1-GMP-063-011 | F1J250501-011 | Soil | X |
| 06-PD1-GMP-063-012 | F1J250501-012 | Soil | X |
| 06-PD1-GMP-063-013 | F1J250501-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-063-014 | F1J250501-014 | Soil | X |
| 06-PD1-GMP-063-015 | F1J250501-015 | Soil | X |
| 06-PD1-GMP-063-016 | F1J250501-016 | Soil | X |
| 06-PD1-GMP-063-017 | F1J250501-017 | Soil | X |
| 06-PD1-GMP-063-018 | F1J250501-018 | Soil | X |
| 06-PD1-GMP-063-019 | F1J250501-019 | Soil | X |
| 06-PD1-GMP-063-020 | F1J250501-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J250501 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 14-27 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-063-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J250501

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F1J280429
SAMPLING DATE(S): April 07, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-010-002 | F1J280429-001 | Soil | X |
| 06-PD1-GMP-010-003 | F1J280429-002 | Soil | X |
| 06-PD1-GMP-010-004 | F1J280429-003 | Soil | X |
| 06-PD1-GMP-010-005 | F1J280429-004 | Soil | X |
| 06-PD1-GMP-010-006 | F1J280429-005 | Soil | X |
| 06-PD1-GMP-010-007 | F1J280429-006 | Soil | X |
| 06-PD1-GMP-010-008 | F1J280429-007 | Soil | X |
| 06-PD1-GMP-010-009 | F1J280429-008 | Soil | X |
| 06-PD1-GMP-010-010 | F1J280429-009 | Soil | X |
| 06-PD1-GMP-010-021 | F1J280429-010 | Soil | X |
| 06-PD1-GMP-010-011 | F1J280429-011 | Soil | X |
| 06-PD1-GMP-010-012 | F1J280429-012 | Soil | X |
| 06-PD1-GMP-010-013 | F1J280429-013 | Soil | X |
| 06-PD1-GMP-010-014 | F1J280429-014 | Soil | X |
| 06-PD1-GMP-010-015 | F1J280429-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-010-016 | F1J280429-016 | Soil | X |
| 06-PD1-GMP-010-017 | F1J280429-017 | Soil | X |
| 06-PD1-GMP-010-018 | F1J280429-018 | Soil | X |
| 06-PD1-GMP-010-019 | F1J280429-019 | Soil | X |
| 06-PD1-GMP-010-020 | F1J280429-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1J280429 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 25 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-010-002 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1J280429

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1K220447
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-023-010 | F1K220447-001 | Soil | X |
| 06-PD1-GMP-023-011 | F1K220447-002 | Soil | X |
| 06-PD1-GMP-023-012 | F1K220447-003 | Soil | X |
| 06-PD1-GMP-023-013 | F1K220447-004 | Soil | X |
| 06-PD1-GMP-023-014 | F1K220447-005 | Soil | X |
| 06-PD1-GMP-023-015 | F1K220447-006 | Soil | X |
| 06-PD1-GMP-023-016 | F1K220447-007 | Soil | X |
| 06-PD1-GMP-023-017 | F1K220447-008 | Soil | X |
| 06-PD1-GMP-023-018 | F1K220447-009 | Soil | X |
| 06-PD1-GMP-023-019 | F1K220447-010 | Soil | X |
| 06-PD1-GMP-023-021 | F1K220447-011 | Soil | X |
| 06-PD1-GMP-023-001 | F1K220447-012 | Soil | X |
| 06-PD1-GMP-023-002 | F1K220447-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-023-003 | F1K220447-014 | Soil | X |
| 06-PD1-GMP-023-004 | F1K220447-015 | Soil | X |
| 06-PD1-GMP-023-005 | F1K220447-016 | Soil | X |
| 06-PD1-GMP-023-006 | F1K220447-017 | Soil | X |
| 06-PD1-GMP-023-007 | F1K220447-018 | Soil | X |
| 06-PD1-GMP-023-008 | F1K220447-019 | Soil | X |
| 06-PD1-GMP-023-009 | F1K220447-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K220447 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 60 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-023-010 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K220447

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012

SDG NUMBER: F1K220450
SAMPLING DATE(S): April 02, 2011 - April 04, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-023-020 | F1K220450-001 | Soil | X |
| 06-PD1-GMP-023-021 | F1K220450-002 | Soil | X |
| 06-PD1-GMP-023-022 | F1K220450-003 | Soil | X |
| 06-PD1-GMP-023-023 | F1K220450-004 | Soil | X |
| 06-PD1-GMP-023-024 | F1K220450-005 | Soil | X |
| 06-PD1-GMP-021-011 | F1K220450-011 | Soil | X |
| 06-PD1-GMP-021-012 | F1K220450-012 | Soil | X |
| 06-PD1-GMP-021-013 | F1K220450-013 | Soil | X |
| 06-PD1-GMP-021-014 | F1K220450-014 | Soil | X |
| 06-PD1-GMP-021-015 | F1K220450-015 | Soil | X |
| 06-PD1-GMP-021-016 | F1K220450-016 | Soil | X |
| 06-PD1-GMP-021-017 | F1K220450-017 | Soil | X |
| 06-PD1-GMP-021-018 | F1K220450-018 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-021-019 | F1K220450-019 | Soil | X |
| 06-PD1-GMP-021-020 | F1K220450-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K220450 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 53-55 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1K230000-039B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0908 pCi/g | 0.0674 pCi/g | 2.69 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All of the affected detected analytes in the associated samples were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) and did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-023-020 | 3.07 | Pass |
| 06-PD1-GMP-023-021 | 3.79 | Pass |
| 06-PD1-GMP-023-022 | 3.62 | Pass |
| 06-PD1-GMP-023-023 | 3.14 | Pass |
| 06-PD1-GMP-023-024 | 2.91 | Pass |
| 06-PD1-GMP-021-011 | 3.44 | Pass |
| 06-PD1-GMP-021-012 | 4.24 | Pass |
| 06-PD1-GMP-021-013 | 3.41 | Pass |
| 06-PD1-GMP-021-014 | 3.92 | Pass |
| 06-PD1-GMP-021-015 | 2.69 | Pass |
| 06-PD1-GMP-021-016 | 3.73 | Pass |
| 06-PD1-GMP-021-017 | 3.09 | Pass |
| 06-PD1-GMP-021-018 | 3.22 | Pass |
| 06-PD1-GMP-021-019 | 2.77 | Pass |
| 06-PD1-GMP-021-020 | 3.34 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-023-020 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K220450

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 05, 2012
SDG NUMBER: F1K220453
SAMPLING DATE(S): April 20, 2011 – October 11, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-043-001 | F1K220453-001 | Soil | X |
| 06-PD1-GMP-043-002 | F1K220453-002 | Soil | X |
| 06-PD1-GMP-043-003 | F1K220453-003 | Soil | X |
| 06-PD1-GMP-043-004 | F1K220453-004 | Soil | X |
| 06-PD1-GMP-043-005 | F1K220453-005 | Soil | X |
| 06-PD1-GMP-043-006 | F1K220453-006 | Soil | X |
| 06-PD1-GMP-043-007 | F1K220453-007 | Soil | X |
| 06-PD1-GMP-043-008 | F1K220453-008 | Soil | X |
| 06-PD1-GMP-043-009 | F1K220453-009 | Soil | X |
| 06-PD1-GMP-043-010 | F1K220453-010 | Soil | X |
| 06-PD1-GMP-043-011 | F1K220453-011 | Soil | X |
| 06-PD1-GMP-043-012 | F1K220453-012 | Soil | X |
| 06-PD1-GMP-043-013 | F1K220453-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-043-014 | F1K220453-014 | Soil | X |
| 06-PD1-GMP-043-015 | F1K220453-015 | Soil | X |
| 06-PD1-GMP-043-021 | F1K220453-016 | Soil | X |
| 06-PD1-GMP-043-022 | F1K220453-017 | Soil | X |
| 06-PD1-GMP-043-023 | F1K220453-018 | Soil | X |
| 06-PD1-GMP-043-024 | F1K220453-019 | Soil | X |
| 06-PD1-GMP-043-025 | F1K220453-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K220453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 37-50 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary. Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-043-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K220453

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012
SDG NUMBER: F1K220455
SAMPLING DATE(S): April 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-021-001 | F1K220455-001 | Soil | X |
| 06-PD1-GMP-021-002 | F1K220455-002 | Soil | X |
| 06-PD1-GMP-021-003 | F1K220455-003 | Soil | X |
| 06-PD1-GMP-021-004 | F1K220455-004 | Soil | X |
| 06-PD1-GMP-021-005 | F1K220455-005 | Soil | X |
| 06-PD1-GMP-021-006 | F1K220455-006 | Soil | X |
| 06-PD1-GMP-021-007 | F1K220455-007 | Soil | X |
| 06-PD1-GMP-021-008 | F1K220455-008 | Soil | X |
| 06-PD1-GMP-021-009 | F1K220455-009 | Soil | X |
| 06-PD1-GMP-021-010 | F1K220455-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K220455 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 55 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-021-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K220455

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012

SDG NUMBER: F1K280413
SAMPLING DATE(S): October 10, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-067-001 | F1K280413-001 | Soil | X |
| 06-PD1-GMP-067-002 | F1K280413-002 | Soil | X |
| 06-PD1-GMP-067-003 | F1K280413-003 | Soil | X |
| 06-PD1-GMP-067-004 | F1K280413-004 | Soil | X |
| 06-PD1-GMP-067-005 | F1K280413-005 | Soil | X |
| 06-PD1-GMP-067-006 | F1K280413-006 | Soil | X |
| 06-PD1-GMP-067-007 | F1K280413-007 | Soil | X |
| 06-PD1-GMP-067-008 | F1K280413-008 | Soil | X |
| 06-PD1-GMP-067-009 | F1K280413-009 | Soil | X |
| 06-PD1-GMP-067-010 | F1K280413-010 | Soil | X |
| 06-PD1-GMP-067-011 | F1K280413-011 | Soil | X |
| 06-PD1-GMP-067-012 | F1K280413-012 | Soil | X |
| 06-PD1-GMP-067-013 | F1K280413-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-067-014 | F1K280413-014 | Soil | X |
| 06-PD1-GMP-067-015 | F1K280413-015 | Soil | X |
| 06-PD1-GMP-067-016 | F1K280413-016 | Soil | X |
| 06-PD1-GMP-067-017 | F1K280413-017 | Soil | X |
| 06-PD1-GMP-067-018 | F1K280413-018 | Soil | X |
| 06-PD1-GMP-067-019 | F1K280413-019 | Soil | X |
| 06-PD1-GMP-067-020 | F1K280413-020 | Soil | X |
| 06-PD1-GMP-067-021 | F1K280413-021 | Soil | X |
| 06-PD1-GMP-067-022 | F1K280413-022 | Soil | X |
| 06-PD1-GMP-067-023 | F1K280413-023 | Soil | X |
| 06-PD1-GMP-067-024 | F1K280413-024 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280413 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank criteria for batch 1333120 met laboratory requirements. No data qualification was necessary.

The blank activity for batch 1333116 exceeded the 2.58 laboratory QC limit in method blank F1K290000-116B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.140 pCi/g | 0.0635 pCi/g | 4.41 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-067-001 | 1.03 | Fail |
| 06-PD1-GMP-067-002 | 0.83 | Fail |
| 06-PD1-GMP-067-003 | 1.93 | Fail |
| 06-PD1-GMP-067-004 | 1.44 | Fail |
| 06-PD1-GMP-067-005 | 2.59 | Pass |
| 06-PD1-GMP-067-006 | 1.58 | Fail |
| 06-PD1-GMP-067-007 | 0.66 | Fail |
| 06-PD1-GMP-067-008 | 1.72 | Fail |
| 06-PD1-GMP-067-009 | 2.47 | Fail |
| 06-PD1-GMP-067-010 | 3.12 | Pass |
| 06-PD1-GMP-067-011 | 2.22 | Fail |
| 06-PD1-GMP-067-012 | 3.10 | Pass |
| 06-PD1-GMP-067-013 | 3.67 | Pass |
| 06-PD1-GMP-067-014 | 2.42 | Fail |
| 06-PD1-GMP-067-015 | 4.12 | Pass |
| 06-PD1-GMP-067-016 | 4.04 | Pass |
| 06-PD1-GMP-067-017 | 3.81 | Pass |
| 06-PD1-GMP-067-018 | 3.58 | Pass |
| 06-PD1-GMP-067-019 | 2.68 | Pass |
| 06-PD1-GMP-067-020 | 3.11 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-067-001 and 06-PD1-GMP-067-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280413

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-067-001 | F1K280413-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-002 | F1K280413-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-003 | F1K280413-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-004 | F1K280413-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-006 | F1K280413-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-007 | F1K280413-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-008 | F1K280413-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-009 | F1K280413-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-011 | F1K280413-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-067-014 | F1K280413-014 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 13, 2012
SDG NUMBER: F1K280415
SAMPLING DATE(S): April 19, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-066-002 | F1K280415-001 | Soil | X |
| 06-PD1-GMP-066-004 | F1K280415-002 | Soil | X |
| 06-PD1-GMP-066-005 | F1K280415-003 | Soil | X |
| 06-PD1-GMP-066-007 | F1K280415-004 | Soil | X |
| 06-PD1-GMP-066-010 | F1K280415-005 | Soil | X |
| 06-PD1-GMP-066-012 | F1K280415-006 | Soil | X |
| 06-PD1-GMP-066-015 | F1K280415-007 | Soil | X |
| 06-PD1-GMP-066-017 | F1K280415-008 | Soil | X |
| 06-PD1-GMP-066-018 | F1K280415-009 | Soil | X |
| 06-PD1-GMP-066-020 | F1K280415-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280415 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criterion of 180 days by 45-46 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-066-002 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1K280415

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F1K280421
SAMPLING DATE(S): October 10, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-068-001 | F1K280421-001 | Soil | X |
| 06-PD1-GMP-068-002 | F1K280421-002 | Soil | X |
| 06-PD1-GMP-068-003 | F1K280421-003 | Soil | X |
| 06-PD1-GMP-068-004 | F1K280421-004 | Soil | X |
| 06-PD1-GMP-068-005 | F1K280421-005 | Soil | X |
| 06-PD1-GMP-068-006 | F1K280421-006 | Soil | X |
| 06-PD1-GMP-068-007 | F1K280421-007 | Soil | X |
| 06-PD1-GMP-068-008 | F1K280421-008 | Soil | X |
| 06-PD1-GMP-068-009 | F1K280421-009 | Soil | X |
| 06-PD1-GMP-068-010 | F1K280421-010 | Soil | X |
| 06-PD1-GMP-068-011 | F1K280421-011 | Soil | X |
| 06-PD1-GMP-068-012 | F1K280421-012 | Soil | X |
| 06-PD1-GMP-068-013 | F1K280421-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-068-014 | F1K280421-014 | Soil | X |
| 06-PD1-GMP-068-015 | F1K280421-015 | Soil | X |
| 06-PD1-GMP-068-016 | F1K280421-016 | Soil | X |
| 06-PD1-GMP-068-017 | F1K280421-017 | Soil | X |
| 06-PD1-GMP-068-018 | F1K280421-018 | Soil | X |
| 06-PD1-GMP-068-019 | F1K280421-019 | Soil | X |
| 06-PD1-GMP-068-020 | F1K280421-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280421 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1K290000-119B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0980 pCi/g | 0.0634 pCi/g | 3.09 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-068-001 | 2.59 | Pass |
| 06-PD1-GMP-068-002 | 2.09 | Fail |
| 06-PD1-GMP-068-003 | 1.90 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-068-004 | 2.30 | Fail |
| 06-PD1-GMP-068-005 | 2.40 | Fail |
| 06-PD1-GMP-068-006 | 2.68 | Pass |
| 06-PD1-GMP-068-007 | 2.66 | Pass |
| 06-PD1-GMP-068-008 | 3.71 | Pass |
| 06-PD1-GMP-068-009 | 3.26 | Pass |
| 06-PD1-GMP-068-010 | 2.52 | Fail |
| 06-PD1-GMP-068-011 | 3.64 | Pass |
| 06-PD1-GMP-068-012 | 3.46 | Pass |
| 06-PD1-GMP-068-013 | 3.22 | Pass |
| 06-PD1-GMP-068-014 | 3.16 | Pass |
| 06-PD1-GMP-068-015 | 3.55 | Pass |
| 06-PD1-GMP-068-016 | 3.81 | Pass |
| 06-PD1-GMP-068-017 | 3.55 | Pass |
| 06-PD1-GMP-068-018 | 3.43 | Pass |
| 06-PD1-GMP-068-019 | 3.83 | Pass |
| 06-PD1-GMP-068-020 | 3.82 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-068-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280421

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-068-002 | F1K280421-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-068-003 | F1K280421-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-068-004 | F1K280421-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-068-005 | F1K280421-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-068-010 | F1K280421-010 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F1K280422
SAMPLING DATE(S): October 07, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-070-001 | F1K280422-001 | Soil | X |
| 06-PD1-GMP-070-002 | F1K280422-002 | Soil | X |
| 06-PD1-GMP-070-003 | F1K280422-003 | Soil | X |
| 06-PD1-GMP-070-004 | F1K280422-004 | Soil | X |
| 06-PD1-GMP-070-005 | F1K280422-005 | Soil | X |
| 06-PD1-GMP-070-006 | F1K280422-006 | Soil | X |
| 06-PD1-GMP-070-007 | F1K280422-007 | Soil | X |
| 06-PD1-GMP-070-008 | F1K280422-008 | Soil | X |
| 06-PD1-GMP-070-009 | F1K280422-009 | Soil | X |
| 06-PD1-GMP-070-010 | F1K280422-010 | Soil | X |
| 06-PD1-GMP-070-011 | F1K280422-011 | Soil | X |
| 06-PD1-GMP-070-012 | F1K280422-012 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-070-013 | F1K280422-013 | Soil | X |
| 06-PD1-GMP-070-014 | F1K280422-014 | Soil | X |
| 06-PD1-GMP-070-015 | F1K280422-015 | Soil | X |
| 06-PD1-GMP-070-016 | F1K280422-016 | Soil | X |
| 06-PD1-GMP-070-017 | F1K280422-017 | Soil | X |
| 06-PD1-GMP-070-018 | F1K280422-018 | Soil | X |
| 06-PD1-GMP-070-019 | F1K280422-019 | Soil | X |
| 06-PD1-GMP-070-020 | F1K280422-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280422 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1K290000-115B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.107 pCi/g | 0.0668 pCi/g | 3.20 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-070-001 | 3.51 | Pass |
| 06-PD1-GMP-070-002 | 3.39 | Pass |
| 06-PD1-GMP-070-003 | 2.06 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-070-004 | 2.80 | Pass |
| 06-PD1-GMP-070-005 | 2.85 | Pass |
| 06-PD1-GMP-070-006 | 3.41 | Pass |
| 06-PD1-GMP-070-007 | 3.20 | Pass |
| 06-PD1-GMP-070-008 | 3.52 | Pass |
| 06-PD1-GMP-070-009 | 3.11 | Pass |
| 06-PD1-GMP-070-010 | 2.79 | Pass |
| 06-PD1-GMP-070-011 | 3.06 | Pass |
| 06-PD1-GMP-070-012 | 3.52 | Pass |
| 06-PD1-GMP-070-013 | 4.14 | Pass |
| 06-PD1-GMP-070-014 | 3.67 | Pass |
| 06-PD1-GMP-070-015 | 2.92 | Pass |
| 06-PD1-GMP-070-016 | 3.08 | Pass |
| 06-PD1-GMP-070-017 | 4.19 | Pass |
| 06-PD1-GMP-070-018 | 3.59 | Pass |
| 06-PD1-GMP-070-019 | 3.60 | Pass |
| 06-PD1-GMP-070-020 | 3.46 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-070-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280422

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-070-003 | F1K280422-003 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F1K280423
SAMPLING DATE(S): October 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-071-001 | F1K280423-001 | Soil | X |
| 06-PD1-GMP-071-002 | F1K280423-002 | Soil | X |
| 06-PD1-GMP-071-003 | F1K280423-003 | Soil | X |
| 06-PD1-GMP-071-004 | F1K280423-004 | Soil | X |
| 06-PD1-GMP-071-005 | F1K280423-005 | Soil | X |
| 06-PD1-GMP-071-006 | F1K280423-006 | Soil | X |
| 06-PD1-GMP-071-007 | F1K280423-007 | Soil | X |
| 06-PD1-GMP-071-008 | F1K280423-008 | Soil | X |
| 06-PD1-GMP-071-009 | F1K280423-009 | Soil | X |
| 06-PD1-GMP-071-010 | F1K280423-010 | Soil | X |
| 06-PD1-GMP-071-011 | F1K280423-011 | Soil | X |
| 06-PD1-GMP-071-012 | F1K280423-012 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-071-013 | F1K280423-013 | Soil | X |
| 06-PD1-GMP-071-014 | F1K280423-014 | Soil | X |
| 06-PD1-GMP-071-015 | F1K280423-015 | Soil | X |
| 06-PD1-GMP-071-016 | F1K280423-016 | Soil | X |
| 06-PD1-GMP-071-017 | F1K280423-017 | Soil | X |
| 06-PD1-GMP-071-018 | F1K280423-018 | Soil | X |
| 06-PD1-GMP-071-019 | F1K280423-019 | Soil | X |
| 06-PD1-GMP-071-020 | F1K280423-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280423 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-071-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280423

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F1K280425
SAMPLING DATE(S): October 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-072-001 | F1K280425-001 | Soil | X |
| 06-PD1-GMP-072-002 | F1K280425-002 | Soil | X |
| 06-PD1-GMP-072-003 | F1K280425-003 | Soil | X |
| 06-PD1-GMP-072-004 | F1K280425-004 | Soil | X |
| 06-PD1-GMP-072-005 | F1K280425-005 | Soil | X |
| 06-PD1-GMP-072-006 | F1K280425-006 | Soil | X |
| 06-PD1-GMP-072-007 | F1K280425-007 | Soil | X |
| 06-PD1-GMP-072-008 | F1K280425-008 | Soil | X |
| 06-PD1-GMP-072-009 | F1K280425-009 | Soil | X |
| 06-PD1-GMP-072-010 | F1K280425-010 | Soil | X |
| 06-PD1-GMP-072-011 | F1K280425-011 | Soil | X |
| 06-PD1-GMP-072-012 | F1K280425-012 | Soil | X |
| 06-PD1-GMP-072-013 | F1K280425-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-072-014 | F1K280425-014 | Soil | X |
| 06-PD1-GMP-072-015 | F1K280425-015 | Soil | X |
| 06-PD1-GMP-072-016 | F1K280425-016 | Soil | X |
| 06-PD1-GMP-072-017 | F1K280425-017 | Soil | X |
| 06-PD1-GMP-072-018 | F1K280425-018 | Soil | X |
| 06-PD1-GMP-072-019 | F1K280425-019 | Soil | X |
| 06-PD1-GMP-072-020 | F1K280425-020 | Soil | X |
| 06-PD1-GMP-072-021 | F1K280425-021 | Soil | X |
| 06-PD1-GMP-072-022 | F1K280425-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280425 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank criteria for batch 1333120 met laboratory requirements. No data qualification was necessary.

The blank activity for batch 1333108 exceeded the 2.58 laboratory QC limit in method blank F1K290000-108B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0886 pCi/g | 0.0683 pCi/g | 2.59 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-072-001 | 2.10 | Fail |
| 06-PD1-GMP-072-002 | 3.31 | Pass |
| 06-PD1-GMP-072-003 | 3.65 | Pass |
| 06-PD1-GMP-072-004 | 2.52 | Fail |
| 06-PD1-GMP-072-005 | 3.29 | Pass |
| 06-PD1-GMP-072-006 | 2.93 | Pass |
| 06-PD1-GMP-072-007 | 2.93 | Pass |
| 06-PD1-GMP-072-008 | 3.26 | Pass |
| 06-PD1-GMP-072-009 | 1.33 | Fail |
| 06-PD1-GMP-072-010 | 3.80 | Pass |
| 06-PD1-GMP-072-011 | 4.10 | Pass |
| 06-PD1-GMP-072-012 | 2.16 | Fail |
| 06-PD1-GMP-072-013 | 3.30 | Pass |
| 06-PD1-GMP-072-014 | 3.61 | Pass |
| 06-PD1-GMP-072-015 | 3.56 | Pass |
| 06-PD1-GMP-072-016 | 3.51 | Pass |
| 06-PD1-GMP-072-017 | 3.44 | Pass |
| 06-PD1-GMP-072-018 | 3.15 | Pass |
| 06-PD1-GMP-072-019 | 2.64 | Pass |
| 06-PD1-GMP-072-020 | 2.86 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-072-001 of this SDG and 06-PD1-GMP-067-021 of SDG F1K280413. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280425

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-072-001 | F1K280425-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-072-004 | F1K280425-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-072-009 | F1K280425-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-072-012 | F1K280425-012 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F1K280430
SAMPLING DATE(S): October 11, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-066-021 | F1K280430-001 | Soil | X |
| 06-PD1-GMP-066-022 | F1K280430-002 | Soil | X |
| 06-PD1-GMP-066-023 | F1K280430-003 | Soil | X |
| 06-PD1-GMP-066-024 | F1K280430-004 | Soil | X |
| 06-PD1-GMP-066-025 | F1K280430-005 | Soil | X |
| 06-PD1-GMP-066-026 | F1K280430-006 | Soil | X |
| 06-PD1-GMP-066-027 | F1K280430-007 | Soil | X |
| 06-PD1-GMP-066-028 | F1K280430-008 | Soil | X |
| 06-PD1-GMP-066-029 | F1K280430-009 | Soil | X |
| 06-PD1-GMP-066-030 | F1K280430-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280430 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-066-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280430

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1K280431
SAMPLING DATE(S): October 13, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-048-012 | F1K280431-001 | Soil | X |
| 06-PD1-GMP-048-018 | F1K280431-002 | Soil | X |
| 06-PD1-GMP-048-023 | F1K280431-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K280431 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-048-012 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K280431

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012
SDG NUMBER: F1K290409
SAMPLING DATE(S): April 20, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-044-001 | F1K290409-001 | Soil | X |
| 06-PD1-GMP-044-002 | F1K290409-002 | Soil | X |
| 06-PD1-GMP-044-003 | F1K290409-003 | Soil | X |
| 06-PD1-GMP-044-004 | F1K290409-004 | Soil | X |
| 06-PD1-GMP-044-005 | F1K290409-005 | Soil | X |
| 06-PD1-GMP-044-006 | F1K290409-006 | Soil | X |
| 06-PD1-GMP-044-007 | F1K290409-007 | Soil | X |
| 06-PD1-GMP-044-008 | F1K290409-008 | Soil | X |
| 06-PD1-GMP-044-009 | F1K290409-009 | Soil | X |
| 06-PD1-GMP-044-010 | F1K290409-010 | Soil | X |
| 06-PD1-GMP-044-011 | F1K290409-011 | Soil | X |
| 06-PD1-GMP-044-012 | F1K290409-012 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290409 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 44-45 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1K300000-043B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.103 pCi/g | 0.0746 pCi/g | 2.77 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-044-001 | 2.62 | Pass |
| 06-PD1-GMP-044-002 | 3.07 | Pass |
| 06-PD1-GMP-044-003 | 2.50 | Fail |
| 06-PD1-GMP-044-004 | 3.03 | Pass |
| 06-PD1-GMP-044-005 | 3.74 | Pass |
| 06-PD1-GMP-044-006 | 2.91 | Pass |
| 06-PD1-GMP-044-007 | 2.00 | Fail |
| 06-PD1-GMP-044-008 | 3.33 | Pass |
| 06-PD1-GMP-044-009 | 2.46 | Fail |
| 06-PD1-GMP-044-010 | 3.41 | Pass |
| 06-PD1-GMP-044-011 | 3.43 | Pass |
| 06-PD1-GMP-044-012 | 3.27 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-044-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290409

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-044-003 | F1K290409-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-044-007 | F1K290409-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-044-009 | F1K290409-009 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012
SDG NUMBER: F1K290411
SAMPLING DATE(S): October 11, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-044-021 | F1K290411-001 | Soil | X |
| 06-PD1-GMP-044-022 | F1K290411-002 | Soil | X |
| 06-PD1-GMP-044-023 | F1K290411-003 | Soil | X |
| 06-PD1-GMP-044-024 | F1K290411-004 | Soil | X |
| 06-PD1-GMP-044-025 | F1K290411-005 | Soil | X |
| 06-PD1-GMP-044-026 | F1K290411-006 | Soil | X |
| 06-PD1-GMP-044-027 | F1K290411-007 | Soil | X |
| 06-PD1-GMP-044-028 | F1K290411-008 | Soil | X |
| 06-PD1-GMP-045-021 | F1K290411-009 | Soil | X |
| 06-PD1-GMP-045-022 | F1K290411-010 | Soil | X |
| 06-PD1-GMP-045-023 | F1K290411-011 | Soil | X |
| 06-PD1-GMP-045-024 | F1K290411-012 | Soil | X |
| 06-PD1-GMP-045-025 | F1K290411-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-045-026 | F1K290411-014 | Soil | X |
| 06-PD1-GMP-045-027 | F1K290411-015 | Soil | X |
| 06-PD1-GMP-045-028 | F1K290411-016 | Soil | X |
| 06-PD1-GMP-045-029 | F1K290411-017 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290411 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-044-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290411

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012
SDG NUMBER: F1K290412
SAMPLING DATE(S): April 20, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-045-013 | F1K290412-001 | Soil | X |
| 06-PD1-GMP-045-001 | F1K290412-002 | Soil | X |
| 06-PD1-GMP-045-002 | F1K290412-003 | Soil | X |
| 06-PD1-GMP-045-003 | F1K290412-004 | Soil | X |
| 06-PD1-GMP-045-004 | F1K290412-005 | Soil | X |
| 06-PD1-GMP-045-005 | F1K290412-006 | Soil | X |
| 06-PD1-GMP-045-007 | F1K290412-007 | Soil | X |
| 06-PD1-GMP-045-008 | F1K290412-008 | Soil | X |
| 06-PD1-GMP-045-009 | F1K290412-009 | Soil | X |
| 06-PD1-GMP-045-010 | F1K290412-010 | Soil | X |
| 06-PD1-GMP-045-012 | F1K290412-011 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290412 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 45-49 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1K300000-045B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.134 pCi/g | 0.0895 pCi/g | 2.99 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-045-013 | 1.70 | Fail |
| 06-PD1-GMP-045-001 | 1.03 | Fail |
| 06-PD1-GMP-045-002 | 2.26 | Fail |
| 06-PD1-GMP-045-003 | 3.42 | Pass |
| 06-PD1-GMP-045-004 | 1.11 | Fail |
| 06-PD1-GMP-045-005 | 0.67 | Fail |
| 06-PD1-GMP-045-007 | 1.64 | Fail |
| 06-PD1-GMP-045-008 | 2.51 | Fail |
| 06-PD1-GMP-045-009 | 2.12 | Fail |
| 06-PD1-GMP-045-010 | 1.51 | Fail |
| 06-PD1-GMP-045-012 | 3.92 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-045-013 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290412

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-045-013 | F1K290412-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-001 | F1K290412-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-002 | F1K290412-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-004 | F1K290412-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-005 | F1K290412-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-007 | F1K290412-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-008 | F1K290412-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-009 | F1K290412-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-045-010 | F1K290412-010 | Lead-214 | B6 | J |

VALIDATA

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4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F1K290414
SAMPLING DATE(S): October 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-048-001 | F1K290414-001 | Soil | X |
| 06-PD1-GMP-048-002 | F1K290414-002 | Soil | X |
| 06-PD1-GMP-048-003 | F1K290414-003 | Soil | X |
| 06-PD1-GMP-048-004 | F1K290414-004 | Soil | X |
| 06-PD1-GMP-048-005 | F1K290414-005 | Soil | X |
| 06-PD1-GMP-048-006 | F1K290414-006 | Soil | X |
| 06-PD1-GMP-048-007 | F1K290414-007 | Soil | X |
| 06-PD1-GMP-048-008 | F1K290414-008 | Soil | X |
| 06-PD1-GMP-048-009 | F1K290414-009 | Soil | X |
| 06-PD1-GMP-048-010 | F1K290414-010 | Soil | X |
| 06-PD1-GMP-048-011 | F1K290414-011 | Soil | X |
| 06-PD1-GMP-048-012 | F1K290414-012 | Soil | X |
| 06-PD1-GMP-048-013 | F1K290414-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-048-014 | F1K290414-014 | Soil | X |
| 06-PD1-GMP-048-015 | F1K290414-015 | Soil | X |
| 06-PD1-GMP-048-016 | F1K290414-016 | Soil | X |
| 06-PD1-GMP-048-017 | F1K290414-017 | Soil | X |
| 06-PD1-GMP-048-018 | F1K290414-018 | Soil | X |
| 06-PD1-GMP-048-019 | F1K290414-019 | Soil | X |
| 06-PD1-GMP-048-020 | F1K290414-020 | Soil | X |
| 06-PD1-GMP-048-021 | F1K290414-021 | Soil | X |
| 06-PD1-GMP-048-022 | F1K290414-022 | Soil | X |
| 06-PD1-GMP-048-023 | F1K290414-023 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290414- Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-048-001 and 06-PD1-GMP-048-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290414

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F1K290415
SAMPLING DATE(S): October 10, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-069-001 | F1K290415-001 | Soil | X |
| 06-PD1-GMP-069-002 | F1K290415-002 | Soil | X |
| 06-PD1-GMP-069-003 | F1K290415-003 | Soil | X |
| 06-PD1-GMP-069-004 | F1K290415-004 | Soil | X |
| 06-PD1-GMP-069-005 | F1K290415-005 | Soil | X |
| 06-PD1-GMP-069-006 | F1K290415-006 | Soil | X |
| 06-PD1-GMP-069-007 | F1K290415-007 | Soil | X |
| 06-PD1-GMP-069-008 | F1K290415-008 | Soil | X |
| 06-PD1-GMP-069-009 | F1K290415-009 | Soil | X |
| 06-PD1-GMP-069-010 | F1K290415-010 | Soil | X |
| 06-PD1-GMP-069-011 | F1K290415-011 | Soil | X |
| 06-PD1-GMP-069-012 | F1K290415-012 | Soil | X |
| 06-PD1-GMP-069-013 | F1K290415-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-069-014 | F1K290415-014 | Soil | X |
| 06-PD1-GMP-069-015 | F1K290415-015 | Soil | X |
| 06-PD1-GMP-069-016 | F1K290415-016 | Soil | X |
| 06-PD1-GMP-069-017 | F1K290415-017 | Soil | X |
| 06-PD1-GMP-069-018 | F1K290415-018 | Soil | X |
| 06-PD1-GMP-069-019 | F1K290415-019 | Soil | X |
| 06-PD1-GMP-069-020 | F1K290415-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290415 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-069-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290415

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F1K290418
SAMPLING DATE(S): October 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-049-001 | F1K290418-001 | Soil | X |
| 06-PD1-GMP-049-002 | F1K290418-002 | Soil | X |
| 06-PD1-GMP-049-003 | F1K290418-003 | Soil | X |
| 06-PD1-GMP-049-004 | F1K290418-004 | Soil | X |
| 06-PD1-GMP-049-005 | F1K290418-005 | Soil | X |
| 06-PD1-GMP-049-006 | F1K290418-006 | Soil | X |
| 06-PD1-GMP-049-007 | F1K290418-007 | Soil | X |
| 06-PD1-GMP-049-008 | F1K290418-008 | Soil | X |
| 06-PD1-GMP-049-009 | F1K290418-009 | Soil | X |
| 06-PD1-GMP-049-010 | F1K290418-010 | Soil | X |
| 06-PD1-GMP-049-011 | F1K290418-011 | Soil | X |
| 06-PD1-GMP-049-012 | F1K290418-012 | Soil | X |
| 06-PD1-GMP-049-013 | F1K290418-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-049-014 | F1K290418-014 | Soil | X |
| 06-PD1-GMP-049-015 | F1K290418-015 | Soil | X |
| 06-PD1-GMP-049-016 | F1K290418-016 | Soil | X |
| 06-PD1-GMP-049-017 | F1K290418-017 | Soil | X |
| 06-PD1-GMP-049-018 | F1K290418-018 | Soil | X |
| 06-PD1-GMP-049-019 | F1K290418-019 | Soil | X |
| 06-PD1-GMP-049-020 | F1K290418-020 | Soil | X |
| 06-PD1-GMP-049-021 | F1K290418-021 | Soil | X |
| 06-PD1-GMP-049-022 | F1K290418-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290418- Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-049-001 of this SDG and 06-PD1-GMP-048-021 of SDG F1K290414. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290418

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F1K290420
SAMPLING DATE(S): October 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-046-001 | F1K290420-001 | Soil | X |
| 06-PD1-GMP-046-002 | F1K290420-002 | Soil | X |
| 06-PD1-GMP-046-003 | F1K290420-003 | Soil | X |
| 06-PD1-GMP-046-004 | F1K290420-004 | Soil | X |
| 06-PD1-GMP-046-005 | F1K290420-005 | Soil | X |
| 06-PD1-GMP-046-006 | F1K290420-006 | Soil | X |
| 06-PD1-GMP-046-007 | F1K290420-007 | Soil | X |
| 06-PD1-GMP-046-008 | F1K290420-008 | Soil | X |
| 06-PD1-GMP-046-009 | F1K290420-009 | Soil | X |
| 06-PD1-GMP-046-010 | F1K290420-010 | Soil | X |
| 06-PD1-GMP-046-011 | F1K290420-011 | Soil | X |
| 06-PD1-GMP-046-012 | F1K290420-012 | Soil | X |
| 06-PD1-GMP-046-013 | F1K290420-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-046-014 | F1K290420-014 | Soil | X |
| 06-PD1-GMP-046-015 | F1K290420-015 | Soil | X |
| 06-PD1-GMP-046-016 | F1K290420-016 | Soil | X |
| 06-PD1-GMP-046-017 | F1K290420-017 | Soil | X |
| 06-PD1-GMP-046-018 | F1K290420-018 | Soil | X |
| 06-PD1-GMP-046-019 | F1K290420-019 | Soil | X |
| 06-PD1-GMP-046-020 | F1K290420-020 | Soil | X |
| 06-PD1-GMP-046-021 | F1K290420-021 | Soil | X |
| 06-PD1-GMP-046-022 | F1K290420-022 | Soil | X |
| 06-PD1-GMP-046-023 | F1K290420-023 | Soil | X |
| 06-PD1-GMP-046-024 | F1K290420-024 | Soil | X |
| 06-PD1-GMP-046-025 | F1K290420-025 | Soil | X |
| 06-PD1-GMP-046-026 | F1K290420-026 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290420- Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-046-001 of this SDG and 06-PD1-GMP-048-021 of SDG F1K290414. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1K290420

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1K290426
SAMPLING DATE(S): April 20, 2011 - October 12, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-043-006 | F1K290426-001 | Soil | X |
| 06-PD1-GMP-043-008 | F1K290426-002 | Soil | X |
| 06-PD1-GMP-043-013 | F1K290426-003 | Soil | X |
| 06-PD1-GMP-044-003 | F1K290426-004 | Soil | X |
| 06-PD1-GMP-044-010 | F1K290426-005 | Soil | X |
| 06-PD1-GMP-044-024 | F1K290426-006 | Soil | X |
| 06-PD1-GMP-045-001 | F1K290426-007 | Soil | X |
| 06-PD1-GMP-045-012 | F1K290426-008 | Soil | X |
| 06-PD1-GMP-045-026 | F1K290426-009 | Soil | X |
| 06-PD1-GMP-046-005 | F1K290426-010 | Soil | X |
| 06-PD1-GMP-046-018 | F1K290426-011 | Soil | X |
| 06-PD1-GMP-046-025 | F1K290426-012 | Soil | X |
| 06-PD1-GMP-049-007 | F1K290426-013 | Soil | X |

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-049-008 | F1K290426-014 | Soil | X |
| 06-PD1-GMP-049-016 | F1K290426-015 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1K290426 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates (7 samples) exceeded the laboratory holding time criteria of 180 days by 60-63 days. Due to the relatively long half-lives of the analytes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-043-006 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1K290426

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F1L070451
SAMPLING DATE(S): October 10, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-050-001 | F1L070451-001 | Soil | X |
| 06-PD1-GMP-050-002 | F1L070451-002 | Soil | X |
| 06-PD1-GMP-050-003 | F1L070451-003 | Soil | X |
| 06-PD1-GMP-050-004 | F1L070451-004 | Soil | X |
| 06-PD1-GMP-050-005 | F1L070451-005 | Soil | X |
| 06-PD1-GMP-050-006 | F1L070451-006 | Soil | X |
| 06-PD1-GMP-050-007 | F1L070451-007 | Soil | X |
| 06-PD1-GMP-050-008 | F1L070451-008 | Soil | X |
| 06-PD1-GMP-050-009 | F1L070451-009 | Soil | X |
| 06-PD1-GMP-050-010 | F1L070451-010 | Soil | X |
| 06-PD1-GMP-050-011 | F1L070451-011 | Soil | X |
| 06-PD1-GMP-050-012 | F1L070451-012 | Soil | X |
| 06-PD1-GMP-050-013 | F1L070451-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-050-014 | F1L070451-014 | Soil | X |
| 06-PD1-GMP-050-015 | F1L070451-015 | Soil | X |
| 06-PD1-GMP-050-016 | F1L070451-016 | Soil | X |
| 06-PD1-GMP-050-017 | F1L070451-017 | Soil | X |
| 06-PD1-GMP-050-018 | F1L070451-018 | Soil | X |
| 06-PD1-GMP-050-019 | F1L070451-019 | Soil | X |
| 06-PD1-GMP-050-020 | F1L070451-020 | Soil | X |
| 06-PD1-GMP-050-021 | F1L070451-021 | Soil | X |
| 06-PD1-GMP-050-022 | F1L070451-022 | Soil | X |
| 06-PD1-GMP-050-023 | F1L070451-023 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L070451- Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-050-001 and 06-PD1-GMP-050-021 of this SDG F1K290414. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L070451

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1L070459
SAMPLING DATE(S): October 10, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-050-007 | F1L070459-001 | Soil | X |
| 06-PD1-GMP-050-009 | F1L070459-002 | Soil | X |
| 06-PD1-GMP-050-019 | F1L070459-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L070459 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1L070457-001 of SDG F1L070457. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L070459

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1L120460
SAMPLING DATE(S): November 09, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-020-109 | F1L120460-001 | Soil | X |
| 06-PD1-GMP-020-114 | F1L120460-002 | Soil | X |
| 06-PD1-GMP-020-118 | F1L120460-003 | Soil | X |
| 06-PD1-GMP-012-114 | F1L120460-006 | Soil | X |
| 06-PD1-GMP-012-119 | F1L120460-007 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L120460 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F1L120455-001 of SDG F1L120455. Both Strontium-90 results were non-detected; therefore, precision criterion was not evaluated. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L120460

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1L120464
SAMPLING DATE(S): November 09, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-012-101 | F1L120464-001 | Soil | X |
| 06-PD1-GMP-012-102 | F1L120464-002 | Soil | X |
| 06-PD1-GMP-012-103 | F1L120464-003 | Soil | X |
| 06-PD1-GMP-012-104 | F1L120464-004 | Soil | X |
| 06-PD1-GMP-012-105 | F1L120464-005 | Soil | X |
| 06-PD1-GMP-012-106 | F1L120464-006 | Soil | X |
| 06-PD1-GMP-012-107 | F1L120464-007 | Soil | X |
| 06-PD1-GMP-012-108 | F1L120464-008 | Soil | X |
| 06-PD1-GMP-012-109 | F1L120464-009 | Soil | X |
| 06-PD1-GMP-012-110 | F1L120464-010 | Soil | X |
| 06-PD1-GMP-012-111 | F1L120464-011 | Soil | X |
| 06-PD1-GMP-012-112 | F1L120464-012 | Soil | X |
| 06-PD1-GMP-012-113 | F1L120464-013 | Soil | X |
| 06-PD1-GMP-012-114 | F1L120464-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-012-115 | F1L120464-015 | Soil | X |
| 06-PD1-GMP-012-116 | F1L120464-016 | Soil | X |
| 06-PD1-GMP-012-117 | F1L120464-017 | Soil | X |
| 06-PD1-GMP-012-118 | F1L120464-018 | Soil | X |
| 06-PD1-GMP-012-119 | F1L120464-019 | Soil | X |
| 06-PD1-GMP-012-120 | F1L120464-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L120464 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-012-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L120464

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F1L120465
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-052-001 | F1L120465-001 | Soil | X |
| 06-PD1-GMP-052-002 | F1L120465-002 | Soil | X |
| 06-PD1-GMP-052-003 | F1L120465-003 | Soil | X |
| 06-PD1-GMP-052-004 | F1L120465-004 | Soil | X |
| 06-PD1-GMP-052-005 | F1L120465-005 | Soil | X |
| 06-PD1-GMP-052-006 | F1L120465-006 | Soil | X |
| 06-PD1-GMP-052-007 | F1L120465-007 | Soil | X |
| 06-PD1-GMP-052-008 | F1L120465-008 | Soil | X |
| 06-PD1-GMP-052-009 | F1L120465-009 | Soil | X |
| 06-PD1-GMP-052-010 | F1L120465-010 | Soil | X |
| 06-PD1-GMP-052-011 | F1L120465-011 | Soil | X |
| 06-PD1-GMP-052-012 | F1L120465-012 | Soil | X |
| 06-PD1-GMP-052-013 | F1L120465-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-052-014 | F1L120465-014 | Soil | X |
| 06-PD1-GMP-052-015 | F1L120465-015 | Soil | X |
| 06-PD1-GMP-052-016 | F1L120465-016 | Soil | X |
| 06-PD1-GMP-052-017 | F1L120465-017 | Soil | X |
| 06-PD1-GMP-052-018 | F1L120465-018 | Soil | X |
| 06-PD1-GMP-052-019 | F1L120465-019 | Soil | X |
| 06-PD1-GMP-052-020 | F1L120465-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L120465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 62-68 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1L130000-156B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.105 pCi/g | 0.0763 pCi/g | 2.75 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-052-001 | 1.38 | Fail |
| 06-PD1-GMP-052-002 | 2.91 | Pass |
| 06-PD1-GMP-052-003 | 2.41 | Fail |
| 06-PD1-GMP-052-004 | 2.39 | Fail |
| 06-PD1-GMP-052-005 | 3.61 | Pass |
| 06-PD1-GMP-052-006 | 1.91 | Fail |
| 06-PD1-GMP-052-007 | 3.20 | Pass |
| 06-PD1-GMP-052-008 | 2.89 | Pass |
| 06-PD1-GMP-052-009 | 2.76 | Pass |
| 06-PD1-GMP-052-010 | 2.79 | Pass |
| 06-PD1-GMP-052-011 | non-detect | N/A |
| 06-PD1-GMP-052-012 | 3.03 | Pass |
| 06-PD1-GMP-052-013 | 1.67 | Fail |
| 06-PD1-GMP-052-014 | 2.12 | Fail |
| 06-PD1-GMP-052-015 | 3.54 | Pass |
| 06-PD1-GMP-052-016 | 2.97 | Pass |
| 06-PD1-GMP-052-017 | 2.77 | Pass |
| 06-PD1-GMP-052-018 | 2.08 | Fail |
| 06-PD1-GMP-052-019 | non-detect | N/A |
| 06-PD1-GMP-052-020 | 3.58 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-052-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L120465

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-052-001 | F1L120465-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-003 | F1L120465-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-004 | F1L120465-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-006 | F1L120465-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-013 | F1L120465-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-014 | F1L120465-014 | Lead-214 | B6 | J |
| 06-PD1-GMP-052-018 | F1L120465-018 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1L120467
SAMPLING DATE(S): March 05, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-018-001 | F1L120467-001 | Soil | X |
| 06-PD1-GMP-018-002 | F1L120467-002 | Soil | X |
| 06-PD1-GMP-018-003 | F1L120467-003 | Soil | X |
| 06-PD1-GMP-018-004 | F1L120467-004 | Soil | X |
| 06-PD1-GMP-018-005 | F1L120467-005 | Soil | X |
| 06-PD1-GMP-018-006 | F1L120467-006 | Soil | X |
| 06-PD1-GMP-018-007 | F1L120467-007 | Soil | X |
| 06-PD1-GMP-018-008 | F1L120467-008 | Soil | X |
| 06-PD1-GMP-018-009 | F1L120467-009 | Soil | X |
| 06-PD1-GMP-018-010 | F1L120467-010 | Soil | X |
| 06-PD1-GMP-018-011 | F1L120467-011 | Soil | X |
| 06-PD1-GMP-018-012 | F1L120467-012 | Soil | X |
| 06-PD1-GMP-018-013 | F1L120467-013 | Soil | X |
| 06-PD1-GMP-018-014 | F1L120467-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-018-015 | F1L120467-015 | Soil | X |
| 06-PD1-GMP-018-016 | F1L120467-016 | Soil | X |
| 06-PD1-GMP-018-017 | F1L120467-017 | Soil | X |
| 06-PD1-GMP-018-018 | F1L120467-018 | Soil | X |
| 06-PD1-GMP-018-019 | F1L120467-019 | Soil | X |
| 06-PD1-GMP-018-020 | F1L120467-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L120467 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 105-119 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1L140000-092B for the following isotopes:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Bismuth-214 | 0.1107 pCi/g | 0.0720 pCi/g | 3.08 |
| Radium-226 | 0.1107 pCi/g | 0.0720 pCi/g | 3.08 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated detected samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | Bi-214 | | Ra-226 | |
|-------------------------|--------------|------------------|--------------|------------------|
| | <u>Z-DER</u> | <u>Pass/Fail</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
| 06-PD1-GMP-018-001 | 2.21 | Fail | 2.21 | Fail |
| 06-PD1-GMP-018-002 | 2.82 | Pass | 2.82 | Pass |
| 06-PD1-GMP-018-003 | 1.56 | Fail | 1.56 | Fail |
| 06-PD1-GMP-018-004 | 3.07 | Pass | 3.07 | Pass |
| 06-PD1-GMP-018-005 | 2.33 | Fail | 2.33 | Fail |
| 06-PD1-GMP-018-006 | 3.54 | Pass | 3.54 | Pass |
| 06-PD1-GMP-018-007 | 3.04 | Pass | 3.04 | Pass |
| 06-PD1-GMP-018-008 | 3.89 | Pass | 3.89 | Pass |
| 06-PD1-GMP-018-009 | 3.33 | Pass | 3.33 | Pass |
| 06-PD1-GMP-018-010 | 3.13 | Pass | 3.13 | Pass |
| 06-PD1-GMP-018-011 | 3.05 | Pass | 3.05 | Pass |
| 06-PD1-GMP-018-012 | 3.09 | Pass | 3.09 | Pass |
| 06-PD1-GMP-018-013 | 2.55 | Fail | 2.55 | Fail |
| 06-PD1-GMP-018-014 | 2.42 | Fail | 2.42 | Fail |
| 06-PD1-GMP-018-015 | 2.70 | Pass | 2.70 | Pass |
| 06-PD1-GMP-018-016 | 1.56 | Fail | 1.56 | Fail |
| 06-PD1-GMP-018-017 | 3.34 | Pass | 3.34 | Pass |
| 06-PD1-GMP-018-018 | 2.04 | Fail | 2.04 | Fail |
| 06-PD1-GMP-018-019 | 2.84 | Pass | 2.84 | Pass |
| 06-PD1-GMP-018-020 | 4.16 | Pass | 4.16 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-018-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L120467

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|------------------------|--------------------|----------------------------|
| 06-PD1-GMP-018-001 | F1L120467-001 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-003 | F1L120467-003 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-005 | F1L120467-005 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-013 | F1L120467-013 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-014 | F1L120467-014 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-016 | F1L120467-016 | Bismuth-214/Radium-226 | B6 | J |
| 06-PD1-GMP-018-018 | F1L120467-018 | Bismuth-214/Radium-226 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F1L120470
SAMPLING DATE(S): November 09, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-020-101 | F1L120470-001 | Soil | X |
| 06-PD1-GMP-020-102 | F1L120470-002 | Soil | X |
| 06-PD1-GMP-020-103 | F1L120470-003 | Soil | X |
| 06-PD1-GMP-020-104 | F1L120470-004 | Soil | X |
| 06-PD1-GMP-020-105 | F1L120470-005 | Soil | X |
| 06-PD1-GMP-020-106 | F1L120470-006 | Soil | X |
| 06-PD1-GMP-020-107 | F1L120470-007 | Soil | X |
| 06-PD1-GMP-020-108 | F1L120470-008 | Soil | X |
| 06-PD1-GMP-020-109 | F1L120470-009 | Soil | X |
| 06-PD1-GMP-020-110 | F1L120470-010 | Soil | X |
| 06-PD1-GMP-020-111 | F1L120470-011 | Soil | X |
| 06-PD1-GMP-020-112 | F1L120470-012 | Soil | X |
| 06-PD1-GMP-020-113 | F1L120470-013 | Soil | X |
| 06-PD1-GMP-020-114 | F1L120470-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-020-115 | F1L120470-015 | Soil | X |
| 06-PD1-GMP-020-116 | F1L120470-016 | Soil | X |
| 06-PD1-GMP-020-117 | F1L120470-017 | Soil | X |
| 06-PD1-GMP-020-118 | F1L120470-018 | Soil | X |
| 06-PD1-GMP-020-119 | F1L120470-019 | Soil | X |
| 06-PD1-GMP-020-120 | F1L120470-020 | Soil | X |
| 06-PD1-GMP-020-121 | F1L120470-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L120470 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-020-101 and 06-PD1-GMP-020-121 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L120470

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F1L140406
SAMPLING DATE(S): April 16, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-052-020 | F1L140406-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L140406 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis date exceeded the laboratory holding time criteria of 180 days by 76 days. Due to the relatively long half-lives of the analytes of concern, this exceedance should not adversely affect sample result. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 05-SHAW-PCB-RSYE2-040 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F1L140406

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F1L210479
SAMPLING DATE(S): October 11, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|----------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-066-025RE | F1L210479-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F1L210479 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F1L220000-084B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0962 pCi/g | 0.0529 pCi/g | 3.63 |

Z_{DER} was calculated to determine the relative difference of the sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample was demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) and did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-066-025RE | 4.87 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-066-025RE of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F1L210479

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012
SDG NUMBER: F2A100460
SAMPLING DATE(S): October 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-047-001 | F2A100460-001 | Soil | X |
| 06-PD1-GMP-047-002 | F2A100460-002 | Soil | X |
| 06-PD1-GMP-047-003 | F2A100460-003 | Soil | X |
| 06-PD1-GMP-047-004 | F2A100460-004 | Soil | X |
| 06-PD1-GMP-047-005 | F2A100460-005 | Soil | X |
| 06-PD1-GMP-047-006 | F2A100460-006 | Soil | X |
| 06-PD1-GMP-047-007 | F2A100460-007 | Soil | X |
| 06-PD1-GMP-047-008 | F2A100460-008 | Soil | X |
| 06-PD1-GMP-047-009 | F2A100460-009 | Soil | X |
| 06-PD1-GMP-047-010 | F2A100460-010 | Soil | X |
| 06-PD1-GMP-047-011 | F2A100460-011 | Soil | X |
| 06-PD1-GMP-047-012 | F2A100460-012 | Soil | X |
| 06-PD1-GMP-047-013 | F2A100460-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-047-014 | F2A100460-014 | Soil | X |
| 06-PD1-GMP-047-015 | F2A100460-015 | Soil | X |
| 06-PD1-GMP-047-016 | F2A100460-016 | Soil | X |
| 06-PD1-GMP-047-017 | F2A100460-017 | Soil | X |
| 06-PD1-GMP-047-018 | F2A100460-018 | Soil | X |
| 06-PD1-GMP-047-019 | F2A100460-019 | Soil | X |
| 06-PD1-GMP-047-020 | F2A100460-020 | Soil | X |
| 06-PD1-GMP-047-021 | F2A100460-021 | Soil | X |
| 06-PD1-GMP-047-022 | F2A100460-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100460 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2A130000-035B (batch 2013035) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.188 pCi/g | 0.0789 pCi/g | 4.77 |

Z_{DER} was calculated to determine the relative difference of sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample that was demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-047-001 | 2.01 | Fail |
| 06-PD1-GMP-047-002 | 3.39 | Pass |
| 06-PD1-GMP-047-003 | 2.37 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-047-004 | 2.95 | Pass |
| 06-PD1-GMP-047-005 | 2.71 | Pass |
| 06-PD1-GMP-047-006 | 3.08 | Pass |
| 06-PD1-GMP-047-007 | 2.58 | Pass |
| 06-PD1-GMP-047-008 | 3.31 | Pass |
| 06-PD1-GMP-047-009 | 2.61 | Pass |
| 06-PD1-GMP-047-010 | 2.07 | Fail |
| 06-PD1-GMP-047-011 | 2.14 | Fail |
| 06-PD1-GMP-047-012 | 2.95 | Pass |
| 06-PD1-GMP-047-013 | 2.61 | Pass |
| 06-PD1-GMP-047-014 | 3.00 | Pass |
| 06-PD1-GMP-047-015 | 2.99 | Pass |
| 06-PD1-GMP-047-016 | 2.99 | Pass |
| 06-PD1-GMP-047-017 | 2.85 | Pass |
| 06-PD1-GMP-047-018 | 2.31 | Fail |
| 06-PD1-GMP-047-019 | 2.46 | Fail |
| 06-PD1-GMP-047-020 | 3.81 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-047-001 of this SDG and F2A090477-001 of SDG F2A090477. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A100460

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-047-001 | F2A100460-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-047-003 | F2A100460-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-047-010 | F2A100460-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-047-011 | F2A100460-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-047-018 | F2A100460-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-047-019 | F2A100460-019 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F2A100463
SAMPLING DATE(S): December 09, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-073-001 | F2A100463-001 | Soil | X |
| 06-PD1-GMP-073-002 | F2A100463-002 | Soil | X |
| 06-PD1-GMP-073-003 | F2A100463-003 | Soil | X |
| 06-PD1-GMP-073-004 | F2A100463-004 | Soil | X |
| 06-PD1-GMP-073-005 | F2A100463-005 | Soil | X |
| 06-PD1-GMP-073-006 | F2A100463-006 | Soil | X |
| 06-PD1-GMP-073-007 | F2A100463-007 | Soil | X |
| 06-PD1-GMP-073-008 | F2A100463-008 | Soil | X |
| 06-PD1-GMP-073-009 | F2A100463-009 | Soil | X |
| 06-PD1-GMP-073-010 | F2A100463-010 | Soil | X |
| 06-PD1-GMP-073-011 | F2A100463-011 | Soil | X |
| 06-PD1-GMP-073-012 | F2A100463-012 | Soil | X |
| 06-PD1-GMP-073-013 | F2A100463-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-073-014 | F2A100463-014 | Soil | X |
| 06-PD1-GMP-073-015 | F2A100463-015 | Soil | X |
| 06-PD1-GMP-073-016 | F2A100463-016 | Soil | X |
| 06-PD1-GMP-073-017 | F2A100463-017 | Soil | X |
| 06-PD1-GMP-073-018 | F2A100463-018 | Soil | X |
| 06-PD1-GMP-073-019 | F2A100463-019 | Soil | X |
| 06-PD1-GMP-073-020 | F2A100463-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100463 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2A130000-098B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.150 pCi/g | 0.0662 pCi/g | 4.52 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-073-001 | 2.45 | Fail |
| 06-PD1-GMP-073-002 | 1.54 | Fail |
| 06-PD1-GMP-073-003 | 2.58 | Pass |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-073-004 | 0.87 | Fail |
| 06-PD1-GMP-073-005 | 0.13 | Fail |
| 06-PD1-GMP-073-006 | 2.82 | Pass |
| 06-PD1-GMP-073-007 | 3.44 | Pass |
| 06-PD1-GMP-073-008 | 2.43 | Fail |
| 06-PD1-GMP-073-009 | 3.76 | Pass |
| 06-PD1-GMP-073-010 | 0.19 | Fail |
| 06-PD1-GMP-073-011 | 0.73 | Fail |
| 06-PD1-GMP-073-012 | 2.34 | Fail |
| 06-PD1-GMP-073-013 | 3.76 | Pass |
| 06-PD1-GMP-073-014 | 2.85 | Pass |
| 06-PD1-GMP-073-015 | 3.70 | Pass |
| 06-PD1-GMP-073-016 | 3.17 | Pass |
| 06-PD1-GMP-073-017 | 2.89 | Pass |
| 06-PD1-GMP-073-018 | 1.38 | Fail |
| 06-PD1-GMP-073-019 | 3.36 | Pass |
| 06-PD1-GMP-073-020 | 2.27 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-073-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A100463

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-073-001 | F2A100463-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-002 | F2A100463-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-004 | F2A100463-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-005 | F2A100463-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-008 | F2A100463-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-010 | F2A100463-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-011 | F2A100463-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-012 | F2A100463-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-018 | F2A100463-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-073-020 | F2A100463-020 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F2A100464
SAMPLING DATE(S): December 02, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-014-003 | F2A100464-006 | Soil | X |
| 06-PD1-SP-014-019 | F2A100464-007 | Soil | X |
| 06-PD1-SP-014-021 | F2A100464-008 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100464 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-073-004 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A100464

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F2A100464
SAMPLING DATE(S): December 09, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-073-004 | F2A100464-001 | Soil | X |
| 06-PD1-GMP-073-008 | F2A100464-002 | Soil | X |
| 06-PD1-GMP-073-013 | F2A100464-003 | Soil | X |
| 06-PD1-GMP-073-015 | F2A100464-004 | Soil | X |
| 06-PD1-GMP-073-016 | F2A100464-005 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100464 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-073-004 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F2A100464

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2A100466
SAMPLING DATE(S): October 12, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-047-003 | F2A100466-001 | Soil | X |
| 06-PD1-GMP-047-012 | F2A100466-002 | Soil | X |
| 06-PD1-GMP-047-013 | F2A100466-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100466 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2A110000-054B for the following analyte:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|-----------------|-----------------------|---------------|----------------|
| Total Strontium | 0.237 pCi/g | 0.151 pCi/g | 3.14 |

The three associated sample results were non-detected; therefore, the samples did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-047-003 | Non-detect | N/A |
| 06-PD1-GMP-047-012 | Non-detect | N/A |
| 06-PD1-GMP-047-013 | Non-detect | N/A |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F2A100472-021 of SDG F2A100472. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A100466

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 01, 2012
SDG NUMBER: F2A100468
SAMPLING DATE(S): December 02, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-014-001 | F2A100468-001 | Soil | X |
| 06-PD1-SP-014-002 | F2A100468-002 | Soil | X |
| 06-PD1-SP-014-003 | F2A100468-003 | Soil | X |
| 06-PD1-SP-014-004 | F2A100468-004 | Soil | X |
| 06-PD1-SP-014-005 | F2A100468-005 | Soil | X |
| 06-PD1-SP-014-006 | F2A100468-006 | Soil | X |
| 06-PD1-SP-014-007 | F2A100468-007 | Soil | X |
| 06-PD1-SP-014-008 | F2A100468-008 | Soil | X |
| 06-PD1-SP-014-009 | F2A100468-009 | Soil | X |
| 06-PD1-SP-014-010 | F2A100468-010 | Soil | X |
| 06-PD1-SP-014-011 | F2A100468-011 | Soil | X |
| 06-PD1-SP-014-012 | F2A100468-012 | Soil | X |
| 06-PD1-SP-014-013 | F2A100468-013 | Soil | X |
| 06-PD1-SP-014-014 | F2A100468-014 | Soil | X |
| 06-PD1-SP-014-015 | F2A100468-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-014-016 | F2A100468-016 | Soil | X |
| 06-PD1-SP-014-017 | F2A100468-017 | Soil | X |
| 06-PD1-SP-014-018 | F2A100468-018 | Soil | X |
| 06-PD1-SP-014-019 | F2A100468-019 | Soil | X |
| 06-PD1-SP-014-020 | F2A100468-020 | Soil | X |
| 06-PD1-SP-014-021 | F2A100468-021 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A100468 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-014-001 of this SDG and sample 06-PD1T-271-001 of SDG F2A100465. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A100468

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F2A170456
SAMPLING DATE(S): December 12, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-074-001 | F2A170456-001 | Soil | X |
| 06-PD1-GMP-074-002 | F2A170456-002 | Soil | X |
| 06-PD1-GMP-074-003 | F2A170456-003 | Soil | X |
| 06-PD1-GMP-074-004 | F2A170456-004 | Soil | X |
| 06-PD1-GMP-074-005 | F2A170456-005 | Soil | X |
| 06-PD1-GMP-074-006 | F2A170456-006 | Soil | X |
| 06-PD1-GMP-074-007 | F2A170456-007 | Soil | X |
| 06-PD1-GMP-074-008 | F2A170456-008 | Soil | X |
| 06-PD1-GMP-074-009 | F2A170456-009 | Soil | X |
| 06-PD1-GMP-074-010 | F2A170456-010 | Soil | X |
| 06-PD1-GMP-074-011 | F2A170456-011 | Soil | X |
| 06-PD1-GMP-074-012 | F2A170456-012 | Soil | X |
| 06-PD1-GMP-074-013 | F2A170456-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-074-014 | F2A170456-014 | Soil | X |
| 06-PD1-GMP-074-015 | F2A170456-015 | Soil | X |
| 06-PD1-GMP-074-016 | F2A170456-016 | Soil | X |
| 06-PD1-GMP-074-017 | F2A170456-017 | Soil | X |
| 06-PD1-GMP-074-018 | F2A170456-018 | Soil | X |
| 06-PD1-GMP-074-019 | F2A170456-019 | Soil | X |
| 06-PD1-GMP-074-020 | F2A170456-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A170456 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-074-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A170456

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F2A170463
SAMPLING DATE(S): December 12, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-074-001 | F2A170463-001 | Soil | X |
| 06-PD1-GMP-074-015 | F2A170463-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A170463 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-074-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A170463

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F2A300440
SAMPLING DATE(S): April 21, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-051-002 | F2A300440-001 | Soil | X |
| 06-PD1-GMP-051-003 | F2A300440-002 | Soil | X |
| 06-PD1-GMP-051-005 | F2A300440-003 | Soil | X |
| 06-PD1-GMP-051-006 | F2A300440-004 | Soil | X |
| 06-PD1-GMP-051-008 | F2A300440-005 | Soil | X |
| 06-PD1-GMP-051-009 | F2A300440-006 | Soil | X |
| 06-PD1-GMP-051-012 | F2A300440-007 | Soil | X |
| 06-PD1-GMP-051-015 | F2A300440-008 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A300440 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for several samples exceeded the laboratory holding time criteria of 180 days by 107-115 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary. Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-051-002 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A300440

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F2A300441
SAMPLING DATE(S): October 11, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-051-028 | F2A300441-001 | Soil | X |
| 06-PD1-GMP-051-029 | F2A300441-002 | Soil | X |
| 06-PD1-GMP-051-030 | F2A300441-003 | Soil | X |
| 06-PD1-GMP-051-031 | F2A300441-004 | Soil | X |
| 06-PD1-GMP-051-032 | F2A300441-005 | Soil | X |
| 06-PD1-GMP-051-033 | F2A300441-006 | Soil | X |
| 06-PD1-GMP-051-034 | F2A300441-007 | Soil | X |
| 06-PD1-GMP-051-035 | F2A300441-008 | Soil | X |
| 06-PD1-GMP-051-036 | F2A300441-009 | Soil | X |
| 06-PD1-GMP-051-037 | F2A300441-010 | Soil | X |
| 06-PD1-GMP-051-038 | F2A300441-011 | Soil | X |
| 06-PD1-GMP-051-039 | F2A300441-012 | Soil | X |
| 06-PD1-GMP-051-040 | F2A300441-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-051-041 | F2A300441-014 | Soil | X |
| 06-PD1-GMP-051-042 | F2A300441-015 | Soil | X |
| 06-PD1-GMP-051-043 | F2A300441-016 | Soil | X |
| 06-PD1-GMP-051-044 | F2A300441-017 | Soil | X |
| 06-PD1-GMP-051-045 | F2A300441-018 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A300441 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2A310000-089B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.124 pCi/g | 0.0488 pCi/g | 5.09 |

Z_{DER} was calculated to determine the relative difference of sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample that was demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-051-028 | 3.73 | Pass |
| 06-PD1-GMP-051-029 | 2.71 | Pass |
| 06-PD1-GMP-051-030 | 3.22 | Pass |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-051-031 | 3.21 | Pass |
| 06-PD1-GMP-051-032 | 3.41 | Pass |
| 06-PD1-GMP-051-033 | 3.60 | Pass |
| 06-PD1-GMP-051-034 | 4.73 | Pass |
| 06-PD1-GMP-051-035 | 2.38 | Fail |
| 06-PD1-GMP-051-036 | 3.78 | Pass |
| 06-PD1-GMP-051-037 | 2.90 | Pass |
| 06-PD1-GMP-051-038 | 3.10 | Pass |
| 06-PD1-GMP-051-039 | 2.88 | Pass |
| 06-PD1-GMP-051-040 | 3.64 | Pass |
| 06-PD1-GMP-051-041 | 3.18 | Pass |
| 06-PD1-GMP-051-042 | 3.03 | Pass |
| 06-PD1-GMP-051-043 | 2.41 | Fail |
| 06-PD1-GMP-051-044 | 3.33 | Pass |
| 06-PD1-GMP-051-045 | 3.16 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-051-028 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A300441

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-051-035 | F2A300441-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-051-043 | F2A300441-016 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2A300447
SAMPLING DATE(S): April 21, 2011 – October 11, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-051-002 | F2A300447-001 | Soil | X |
| 06-PD1-GMP-051-015 | F2A300447-002 | Soil | X |
| 06-PD1-GMP-051-032 | F2A300447-003 | Soil | X |
| 06-PD1-GMP-051-035 | F2A300447-004 | Soil | X |
| 06-PD1-GMP-051-042 | F2A300447-005 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2A300447 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates (2 samples) exceeded the laboratory holding time criteria of 180 days by 117 days. Due to the relatively long half-lives of the analytes of concern, this exceedance should not adversely affect sample result. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F2A300417-001 of SDG F2A300417. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2A300447

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F2B010455
SAMPLING DATE(S): January 16, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-011-201 | F2B010455-001 | Soil | X |
| 06-PD1-GMP-011-202 | F2B010455-002 | Soil | X |
| 06-PD1-GMP-011-203 | F2B010455-003 | Soil | X |
| 06-PD1-GMP-011-204 | F2B010455-004 | Soil | X |
| 06-PD1-GMP-011-205 | F2B010455-005 | Soil | X |
| 06-PD1-GMP-011-206 | F2B010455-006 | Soil | X |
| 06-PD1-GMP-011-207 | F2B010455-007 | Soil | X |
| 06-PD1-GMP-011-208 | F2B010455-008 | Soil | X |
| 06-PD1-GMP-011-209 | F2B010455-009 | Soil | X |
| 06-PD1-GMP-011-210 | F2B010455-010 | Soil | X |
| 06-PD1-GMP-011-211 | F2B010455-011 | Soil | X |
| 06-PD1-GMP-011-212 | F2B010455-012 | Soil | X |
| 06-PD1-GMP-011-213 | F2B010455-013 | Soil | X |
| 06-PD1-GMP-011-214 | F2B010455-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-011-215 | F2B010455-015 | Soil | X |
| 06-PD1-GMP-011-216 | F2B010455-016 | Soil | X |
| 06-PD1-GMP-011-217 | F2B010455-017 | Soil | X |
| 06-PD1-GMP-011-218 | F2B010455-018 | Soil | X |
| 06-PD1-GMP-011-219 | F2B010455-019 | Soil | X |
| 06-PD1-GMP-011-220 | F2B010455-020 | Soil | X |

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DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
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| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B010455 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-011-208 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B010455

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 14, 2012
SDG NUMBER: F2B010458
SAMPLING DATE(S): December 23, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-060-101 | F2B010458-001 | Soil | X |
| 06-PD1-GMP-060-102 | F2B010458-002 | Soil | X |
| 06-PD1-GMP-060-103 | F2B010458-003 | Soil | X |
| 06-PD1-GMP-060-104 | F2B010458-004 | Soil | X |
| 06-PD1-GMP-060-105 | F2B010458-005 | Soil | X |
| 06-PD1-GMP-060-106 | F2B010458-006 | Soil | X |
| 06-PD1-GMP-060-107 | F2B010458-007 | Soil | X |
| 06-PD1-GMP-060-108 | F2B010458-008 | Soil | X |
| 06-PD1-GMP-060-109 | F2B010458-009 | Soil | X |
| 06-PD1-GMP-060-110 | F2B010458-010 | Soil | X |
| 06-PD1-GMP-060-111 | F2B010458-011 | Soil | X |
| 06-PD1-GMP-060-112 | F2B010458-012 | Soil | X |
| 06-PD1-GMP-060-113 | F2B010458-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-060-114 | F2B010458-014 | Soil | X |
| 06-PD1-GMP-060-115 | F2B010458-015 | Soil | X |
| 06-PD1-GMP-060-116 | F2B010458-016 | Soil | X |
| 06-PD1-GMP-060-117 | F2B010458-017 | Soil | X |
| 06-PD1-GMP-060-118 | F2B010458-018 | Soil | X |
| 06-PD1-GMP-060-119 | F2B010458-019 | Soil | X |
| 06-PD1-GMP-060-120 | F2B010458-020 | Soil | X |

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MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B010458 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B030000-101B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.102 pCi/g | 0.0499 pCi/g | 4.08 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-060-101 | 2.82 | Pass |
| 06-PD1-GMP-060-102 | 4.01 | Pass |
| 06-PD1-GMP-060-103 | 2.37 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-060-104 | 2.24 | Fail |
| 06-PD1-GMP-060-105 | 3.03 | Pass |
| 06-PD1-GMP-060-106 | 3.17 | Pass |
| 06-PD1-GMP-060-107 | 1.40 | Fail |
| 06-PD1-GMP-060-108 | 2.93 | Pass |
| 06-PD1-GMP-060-109 | 4.05 | Pass |
| 06-PD1-GMP-060-110 | 4.23 | Pass |
| 06-PD1-GMP-060-111 | 3.26 | Pass |
| 06-PD1-GMP-060-112 | 3.53 | Pass |
| 06-PD1-GMP-060-113 | 3.31 | Pass |
| 06-PD1-GMP-060-114 | 3.51 | Pass |
| 06-PD1-GMP-060-115 | 2.71 | Pass |
| 06-PD1-GMP-060-116 | 2.92 | Pass |
| 06-PD1-GMP-060-117 | 3.16 | Pass |
| 06-PD1-GMP-060-118 | 3.31 | Pass |
| 06-PD1-GMP-060-119 | 3.40 | Pass |
| 06-PD1-GMP-060-120 | 3.47 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-060-111 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B010458

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-060-103 | F2B010458-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-060-104 | F2B010458-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-060-107 | F2B010458-007 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F2B020423
SAMPLING DATE(S): December 23, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-060-109 | F2B020423-003 | Soil | X |
| 06-PD1-GMP-060-111 | F2B020423-004 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
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DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B020423 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B020000-121B for the following analyte:

| <u>Analyte</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|-----------------|-----------------------|---------------|----------------|
| Total Strontium | 0.145 pCi/g | 0.103 pCi/g | 2.82 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-060-109 | Non-detect | N/A |
| 06-PD1-GMP-060-111 | 0.21 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-011-214 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B020423

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|-----------------|--------------------|----------------------------|
| 06-PD1-GMP-060-111 | F2B020423-004 | Total Strontium | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F2B060422
SAMPLING DATE(S): November 18, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-002-121 | F2B060422-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
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| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B060422 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-002-12 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B060422

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F2B060429
SAMPLING DATE(S): November 07, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-002-101 | F2B060429-001 | Soil | X |
| 06-PD1-SP-002-102 | F2B060429-002 | Soil | X |
| 06-PD1-SP-002-103 | F2B060429-003 | Soil | X |
| 06-PD1-SP-002-104 | F2B060429-004 | Soil | X |
| 06-PD1-SP-002-105 | F2B060429-005 | Soil | X |
| 06-PD1-SP-002-107 | F2B060429-006 | Soil | X |
| 06-PD1-SP-002-108 | F2B060429-007 | Soil | X |
| 06-PD1-SP-002-109 | F2B060429-008 | Soil | X |
| 06-PD1-SP-002-110 | F2B060429-009 | Soil | X |
| 06-PD1-SP-002-111 | F2B060429-010 | Soil | X |
| 06-PD1-SP-002-112 | F2B060429-011 | Soil | X |
| 06-PD1-SP-002-113 | F2B060429-012 | Soil | X |
| 06-PD1-SP-002-114 | F2B060429-013 | Soil | X |
| 06-PD1-SP-002-115 | F2B060429-014 | Soil | X |
| 06-PD1-SP-002-116 | F2B060429-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|-------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-SP-002-117 | F2B060429-016 | Soil | X |
| 06-PD1-SP-002-118 | F2B060429-017 | Soil | X |
| 06-PD1-SP-002-119 | F2B060429-018 | Soil | X |
| 06-PD1-SP-002-120 | F2B060429-019 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B060429 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-002-101 of this SDG and sample 06-PD1T-271-001 of SDG F2A100465. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F2B060429

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F2B060439
SAMPLING DATE(S): November 07, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-002-105 | F2B060439-004 | Soil | X |
| 06-PD1-SP-002-115 | F2B060439-005 | Soil | X |
| 06-PD1-SP-002-116 | F2B060439-006 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B060439 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-SP-002-105 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B060439

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F2B130446
SAMPLING DATE(S): January 21, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-056-101 | F2B130446-001 | Soil | X |
| 06-PD1-GMP-056-102 | F2B130446-002 | Soil | X |
| 06-PD1-GMP-056-103 | F2B130446-003 | Soil | X |
| 06-PD1-GMP-056-104 | F2B130446-004 | Soil | X |
| 06-PD1-GMP-056-105 | F2B130446-005 | Soil | X |
| 06-PD1-GMP-056-106 | F2B130446-006 | Soil | X |
| 06-PD1-GMP-056-107 | F2B130446-007 | Soil | X |
| 06-PD1-GMP-056-108 | F2B130446-008 | Soil | X |
| 06-PD1-GMP-056-109 | F2B130446-009 | Soil | X |
| 06-PD1-GMP-056-110 | F2B130446-010 | Soil | X |
| 06-PD1-GMP-056-111 | F2B130446-011 | Soil | X |
| 06-PD1-GMP-056-112 | F2B130446-012 | Soil | X |
| 06-PD1-GMP-056-113 | F2B130446-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-056-114 | F2B130446-014 | Soil | X |
| 06-PD1-GMP-056-115 | F2B130446-015 | Soil | X |
| 06-PD1-GMP-056-116 | F2B130446-016 | Soil | X |
| 06-PD1-GMP-056-117 | F2B130446-017 | Soil | X |
| 06-PD1-GMP-056-118 | F2B130446-018 | Soil | X |
| 06-PD1-GMP-056-119 | F2B130446-019 | Soil | X |
| 06-PD1-GMP-056-120 | F2B130446-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B130446 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B140000-025B for the following isotopes:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Bismuth-214 | 0.108 pCi/g | 0.0828 pCi/g | 2.61 |
| Radium-226 | 0.108 pCi/g | 0.0828 pCi/g | 2.61 |

Z_{DER} was calculated to determine the relative difference of sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample that was demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

| <u>Client Sample ID</u> | Bi-214 | <u>Pass/Fail</u> | Ra-226 | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|--------------|------------------|
| | <u>Z-DER</u> | | <u>Z-DER</u> | |
| 06-PD1-GMP-056-101 | 1.90 | Fail | 1.90 | Fail |
| 06-PD1-GMP-056-102 | 1.51 | Fail | 1.51 | Fail |
| 06-PD1-GMP-056-103 | 2.74 | Pass | 2.74 | Pass |
| 06-PD1-GMP-056-104 | 2.21 | Fail | 2.21 | Fail |
| 06-PD1-GMP-056-105 | 3.32 | Pass | 3.32 | Pass |
| 06-PD1-GMP-056-106 | 4.07 | Pass | 4.07 | Pass |
| 06-PD1-GMP-056-107 | 2.95 | Pass | 2.95 | Pass |
| 06-PD1-GMP-056-108 | 3.05 | Pass | 3.05 | Pass |
| 06-PD1-GMP-056-109 | 2.52 | Fail | 2.52 | Fail |
| 06-PD1-GMP-056-110 | 2.60 | Pass | 2.60 | Pass |
| 06-PD1-GMP-056-111 | 0.78 | Fail | 0.78 | Fail |
| 06-PD1-GMP-056-112 | 2.69 | Pass | 2.69 | Pass |
| 06-PD1-GMP-056-113 | 2.47 | Fail | 2.47 | Fail |
| 06-PD1-GMP-056-114 | 0.36 | Fail | 0.36 | Fail |
| 06-PD1-GMP-056-115 | 2.00 | Fail | 2.00 | Fail |
| 06-PD1-GMP-056-116 | 2.46 | Fail | 2.46 | Fail |
| 06-PD1-GMP-056-117 | Non-detect | N/A | Non-detect | N/A |
| 06-PD1-GMP-056-118 | 0.66 | Fail | 0.66 | Fail |
| 06-PD1-GMP-056-119 | 0.40 | Fail | 0.40 | Fail |
| 06-PD1-GMP-056-120 | 2.48 | Fail | 2.48 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-056-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B130446

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|-------------------------|--------------------|----------------------------|
| 06-PD1-GMP-056-101 | F2B130446-001 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-102 | F2B130446-002 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-104 | F2B130446-004 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-109 | F2B130446-009 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-111 | F2B130446-011 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-113 | F2B130446-013 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-114 | F2B130446-014 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-115 | F2B130446-015 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-116 | F2B130446-016 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-118 | F2B130446-018 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-119 | F2B130446-019 | Bismuth-214, Radium-226 | B6 | J |
| 06-PD1-GMP-056-120 | F2B130446-020 | Bismuth-214, Radium-226 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 06, 2012

SDG NUMBER: F2B130449
SAMPLING DATE(S): March 05, 2011 - March 07, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-028-001 | F2B130449-001 | Soil | X |
| 06-PD1-GMP-028-002 | F2B130449-002 | Soil | X |
| 06-PD1-GMP-028-003 | F2B130449-003 | Soil | X |
| 06-PD1-GMP-028-004 | F2B130449-004 | Soil | X |
| 06-PD1-GMP-028-005 | F2B130449-005 | Soil | X |
| 06-PD1-GMP-028-006 | F2B130449-006 | Soil | X |
| 06-PD1-GMP-028-007 | F2B130449-007 | Soil | X |
| 06-PD1-GMP-028-008 | F2B130449-008 | Soil | X |
| 06-PD1-GMP-028-009 | F2B130449-009 | Soil | X |
| 06-PD1-GMP-028-010 | F2B130449-010 | Soil | X |
| 06-PD1-GMP-028-011 | F2B130449-011 | Soil | X |
| 06-PD1-GMP-028-012 | F2B130449-012 | Soil | X |
| 06-PD1-GMP-028-013 | F2B130449-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-028-014 | F2B130449-014 | Soil | X |
| 06-PD1-GMP-028-015 | F2B130449-015 | Soil | X |
| 06-PD1-GMP-028-016 | F2B130449-016 | Soil | X |
| 06-PD1-GMP-028-017 | F2B130449-017 | Soil | X |
| 06-PD1-GMP-028-018 | F2B130449-018 | Soil | X |
| 06-PD1-GMP-028-019 | F2B130449-019 | Soil | X |
| 06-PD1-GMP-028-020 | F2B130449-020 | Soil | X |
| 06-PD1-GMP-028-021 | F2B130449-021 | Soil | X |
| 06-PD1-GMP-028-022 | F2B130449-022 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B130449 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 167 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B140000-031B (batch 2045031) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.165 pCi/g | 0.0707 pCi/g | 4.67 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-028-013 | 2.37 | Fail |
| 06-PD1-GMP-028-014 | 1.04 | Fail |
| 06-PD1-GMP-028-015 | 1.12 | Fail |
| 06-PD1-GMP-028-016 | 2.16 | Fail |
| 06-PD1-GMP-028-017 | 2.18 | Fail |
| 06-PD1-GMP-028-018 | 1.45 | Fail |
| 06-PD1-GMP-028-019 | 2.21 | Fail |
| 06-PD1-GMP-028-020 | 1.08 | Fail |
| 06-PD1-GMP-028-021 | 2.11 | Fail |
| 06-PD1-GMP-028-022 | 1.87 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-028-001 and 06-PD1-GMP-028-013 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B130449

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-028-013 | F2B130449-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-014 | F2B130449-014 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-015 | F2B130449-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-016 | F2B130449-016 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-017 | F2B130449-017 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-018 | F2B130449-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-019 | F2B130449-019 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-020 | F2B130449-020 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-021 | F2B130449-021 | Lead-214 | B6 | J |
| 06-PD1-GMP-028-022 | F2B130449-022 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 14, 2012

SDG NUMBER: F2B130453
SAMPLING DATE(S): October 13, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-071-007 | F2B130453-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B130453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-071-007 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B130453

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: November 01, 2012

SDG NUMBER: F2B200417
SAMPLING DATE(S): January 29, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-SP-006-003 | F2B200417-007 | Soil | X |
| 06-PD1-SP-006-006 | F2B200417-008 | Soil | X |

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MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B200417 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

The LCS recovery was below the laboratory QC limits in LCS F2B210000-168C, indicating a potential negative bias for the analyte.

| <u>Analyte</u> | <u>LCS Recovery</u> | <u>QC Limits</u> |
|-----------------|---------------------|------------------|
| Total Strontium | 68% | 85-118% |

The two associated sample results for Total Strontium were non-detected and were assigned the validation qualifier of estimated (UJ).

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-028-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B200417

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|-----------------|--------------------|----------------------------|
| 06-PD1-SP-006-003 | F2B200417-007 | Total Strontium | L | UJ |
| 06-PD1-SP-006-006 | F2B200417-008 | Total Strontium | L | UJ |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2B200424
SAMPLING DATE(S): April 20, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-042-001 | F2B200424-001 | Soil | X |
| 06-PD1-GMP-042-002 | F2B200424-002 | Soil | X |
| 06-PD1-GMP-042-003 | F2B200424-003 | Soil | X |
| 06-PD1-GMP-042-004 | F2B200424-004 | Soil | X |
| 06-PD1-GMP-042-005 | F2B200424-005 | Soil | X |
| 06-PD1-GMP-042-006 | F2B200424-006 | Soil | X |
| 06-PD1-GMP-042-007 | F2B200424-007 | Soil | X |
| 06-PD1-GMP-042-008 | F2B200424-008 | Soil | X |
| 06-PD1-GMP-042-009 | F2B200424-009 | Soil | X |
| 06-PD1-GMP-042-010 | F2B200424-010 | Soil | X |
| 06-PD1-GMP-042-011 | F2B200424-011 | Soil | X |
| 06-PD1-GMP-042-012 | F2B200424-012 | Soil | X |
| 06-PD1-GMP-042-013 | F2B200424-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-042-014 | F2B200424-014 | Soil | X |
| 06-PD1-GMP-042-015 | F2B200424-015 | Soil | X |
| 06-PD1-GMP-042-016 | F2B200424-016 | Soil | X |
| 06-PD1-GMP-042-017 | F2B200424-017 | Soil | X |
| 06-PD1-GMP-042-018 | F2B200424-018 | Soil | X |
| 06-PD1-GMP-042-019 | F2B200424-019 | Soil | X |
| 06-PD1-GMP-042-020 | F2B200424-020 | Soil | X |
| 06-PD1-GMP-042-021 | F2B200424-021 | Soil | X |
| 06-PD1-GMP-042-022 | F2B200424-022 | Soil | X |
| 06-PD1-GMP-042-023 | F2B200424-023 | Soil | X |
| 06-PD1-GMP-042-024 | F2B200424-024 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B200424 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 135 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B210000-139B (batch 2052139) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.183 pCi/g | 0.0762 pCi/g | 4.81 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-042-001 | 0.17 | Fail |
| 06-PD1-GMP-042-002 | 3.34 | Pass |
| 06-PD1-GMP-042-003 | 1.92 | Fail |
| 06-PD1-GMP-042-004 | 2.69 | Pass |
| 06-PD1-GMP-042-005 | 1.64 | Fail |
| 06-PD1-GMP-042-006 | 2.45 | Fail |
| 06-PD1-GMP-042-007 | 2.61 | Pass |
| 06-PD1-GMP-042-008 | 2.46 | Fail |
| 06-PD1-GMP-042-009 | 2.20 | Fail |
| 06-PD1-GMP-042-010 | 1.47 | Fail |
| 06-PD1-GMP-042-011 | 2.17 | Fail |
| 06-PD1-GMP-042-012 | 1.96 | Fail |
| 06-PD1-GMP-042-013 | 1.98 | Fail |
| 06-PD1-GMP-042-014 | 3.28 | Pass |
| 06-PD1-GMP-042-015 | 1.15 | Fail |
| 06-PD1-GMP-042-016 | 3.43 | Pass |
| 06-PD1-GMP-042-017 | 2.77 | Pass |
| 06-PD1-GMP-042-018 | 3.44 | Pass |
| 06-PD1-GMP-042-019 | 3.19 | Pass |

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2B210000-141B (batch 2052141) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.114 pCi/g | 0.0662 pCi/g | 3.43 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-042-021 | 2.48 | Fail |
| 06-PD1-GMP-042-022 | 4.03 | Pass |
| 06-PD1-GMP-042-023 | 3.28 | Pass |
| 06-PD1-GMP-042-024 | 2.28 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-042-001 and 06-PD1-GMP-042-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F2B200424

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-042-001 | F2B200424-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-003 | F2B200424-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-005 | F2B200424-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-006 | F2B200424-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-008 | F2B200424-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-009 | F2B200424-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-010 | F2B200424-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-011 | F2B200424-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-012 | F2B200424-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-013 | F2B200424-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-015 | F2B200424-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-020 | F2B200424-020 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-021 | F2B200424-021 | Lead-214 | B6 | J |
| 06-PD1-GMP-042-024 | F2B200424-024 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012
SDG NUMBER: F2B210449
SAMPLING DATE(S): January 26, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-034-101 | F2B210449-001 | Soil | X |
| 06-PD1-GMP-034-102 | F2B210449-002 | Soil | X |
| 06-PD1-GMP-034-103 | F2B210449-003 | Soil | X |
| 06-PD1-GMP-034-104 | F2B210449-004 | Soil | X |
| 06-PD1-GMP-034-105 | F2B210449-005 | Soil | X |
| 06-PD1-GMP-034-106 | F2B210449-006 | Soil | X |
| 06-PD1-GMP-034-107 | F2B210449-007 | Soil | X |
| 06-PD1-GMP-034-108 | F2B210449-008 | Soil | X |
| 06-PD1-GMP-034-109 | F2B210449-009 | Soil | X |
| 06-PD1-GMP-034-110 | F2B210449-010 | Soil | X |
| 06-PD1-GMP-034-111 | F2B210449-011 | Soil | X |
| 06-PD1-GMP-034-112 | F2B210449-012 | Soil | X |
| 06-PD1-GMP-034-113 | F2B210449-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-034-114 | F2B210449-014 | Soil | X |
| 06-PD1-GMP-034-115 | F2B210449-015 | Soil | X |
| 06-PD1-GMP-034-116 | F2B210449-016 | Soil | X |
| 06-PD1-GMP-034-117 | F2B210449-017 | Soil | X |
| 06-PD1-GMP-034-118 | F2B210449-018 | Soil | X |
| 06-PD1-GMP-034-119 | F2B210449-019 | Soil | X |
| 06-PD1-GMP-034-120 | F2B210449-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B210449- Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-034-101 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B210449

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2B210452
SAMPLING DATE(S): January 26, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-034-111 | F2B210452-003 | Soil | X |
| 06-PD1-GMP-034-120 | F2B210452-004 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B210452 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F2B200416-002 of SDG F2B200416. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B210452

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2B290427
SAMPLING DATE(S): February 10, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-040-101 | F2B290427-001 | Soil | X |
| 06-PD1-GMP-040-102 | F2B290427-002 | Soil | X |
| 06-PD1-GMP-040-103 | F2B290427-003 | Soil | X |
| 06-PD1-GMP-040-104 | F2B290427-004 | Soil | X |
| 06-PD1-GMP-040-105 | F2B290427-005 | Soil | X |
| 06-PD1-GMP-040-106 | F2B290427-006 | Soil | X |
| 06-PD1-GMP-040-107 | F2B290427-007 | Soil | X |
| 06-PD1-GMP-040-108 | F2B290427-008 | Soil | X |
| 06-PD1-GMP-040-109 | F2B290427-009 | Soil | X |
| 06-PD1-GMP-040-110 | F2B290427-010 | Soil | X |
| 06-PD1-GMP-040-111 | F2B290427-011 | Soil | X |
| 06-PD1-GMP-040-112 | F2B290427-012 | Soil | X |
| 06-PD1-GMP-040-113 | F2B290427-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-040-114 | F2B290427-014 | Soil | X |
| 06-PD1-GMP-040-115 | F2B290427-015 | Soil | X |
| 06-PD1-GMP-040-116 | F2B290427-016 | Soil | X |
| 06-PD1-GMP-040-117 | F2B290427-017 | Soil | X |
| 06-PD1-GMP-040-118 | F2B290427-018 | Soil | X |
| 06-PD1-GMP-040-119 | F2B290427-019 | Soil | X |
| 06-PD1-GMP-040-120 | F2B290427-020 | Soil | X |
| 06-PD1-GMP-040-121 | F2B290427-021 | Soil | X |
| 06-PD1-GMP-040-122 | F2B290427-022 | Soil | X |
| 06-PD1-GMP-040-123 | F2B290427-023 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B290427 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2C020000-022B (batch 2062022) for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.201 pCi/g | 0.0872 pCi/g | 4.61 |

Z_{DER} was calculated to determine the relative difference of sample analyte result with the failed blank analyte result. The affected detected analyte in the associated sample that was demonstrated to be significantly different ($Z_{\text{DER}} > 2.58$) did not require data qualification. Associated samples with $Z_{\text{DERs}} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-040-101 | 2.26 | Fail |
| 06-PD1-GMP-040-102 | 2.78 | Pass |
| 06-PD1-GMP-040-103 | 1.90 | Fail |

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-040-104 | 2.56 | Fail |
| 06-PD1-GMP-040-105 | 2.06 | Fail |
| 06-PD1-GMP-040-106 | 2.33 | Fail |
| 06-PD1-GMP-040-107 | 2.34 | Fail |
| 06-PD1-GMP-040-108 | 2.46 | Fail |
| 06-PD1-GMP-040-109 | 2.58 | Fail |
| 06-PD1-GMP-040-110 | 1.40 | Fail |
| 06-PD1-GMP-040-111 | 3.11 | Pass |
| 06-PD1-GMP-040-112 | 1.93 | Fail |
| 06-PD1-GMP-040-113 | 2.91 | Pass |
| 06-PD1-GMP-040-114 | 2.16 | Fail |
| 06-PD1-GMP-040-115 | 1.16 | Fail |
| 06-PD1-GMP-040-116 | 2.65 | Pass |
| 06-PD1-GMP-040-117 | 0.97 | Fail |
| 06-PD1-GMP-040-118 | 2.28 | Fail |
| 06-PD1-GMP-040-119 | 2.71 | Pass |
| 06-PD1-GMP-040-120 | 2.96 | Pass |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-040-101 and 06-PD1-GMP-040-121 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B290427

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-040-101 | F2B290427-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-103 | F2B290427-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-104 | F2B290427-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-105 | F2B290427-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-106 | F2B290427-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-107 | F2B290427-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-108 | F2B290427-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-109 | F2B290427-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-110 | F2B290427-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-112 | F2B290427-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-114 | F2B290427-014 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-115 | F2B290427-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-117 | F2B290427-017 | Lead-214 | B6 | J |
| 06-PD1-GMP-040-118 | F2B290427-018 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F2B290443
SAMPLING DATE(S): March 04, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-017-001 | F2B290443-001 | Soil | X |
| 06-PD1-GMP-017-002 | F2B290443-002 | Soil | X |
| 06-PD1-GMP-017-003 | F2B290443-003 | Soil | X |
| 06-PD1-GMP-017-004 | F2B290443-004 | Soil | X |
| 06-PD1-GMP-017-005 | F2B290443-005 | Soil | X |
| 06-PD1-GMP-017-006 | F2B290443-006 | Soil | X |
| 06-PD1-GMP-017-007 | F2B290443-007 | Soil | X |
| 06-PD1-GMP-017-008 | F2B290443-008 | Soil | X |
| 06-PD1-GMP-017-009 | F2B290443-009 | Soil | X |
| 06-PD1-GMP-017-010 | F2B290443-010 | Soil | X |
| 06-PD1-GMP-017-011 | F2B290443-011 | Soil | X |
| 06-PD1-GMP-017-012 | F2B290443-012 | Soil | X |
| 06-PD1-GMP-017-013 | F2B290443-013 | Soil | X |
| 06-PD1-GMP-017-014 | F2B290443-014 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-017-015 | F2B290443-015 | Soil | X |
| 06-PD1-GMP-017-016 | F2B290443-016 | Soil | X |
| 06-PD1-GMP-017-017 | F2B290443-017 | Soil | X |
| 06-PD1-GMP-017-018 | F2B290443-018 | Soil | X |
| 06-PD1-GMP-017-019 | F2B290443-019 | Soil | X |
| 06-PD1-GMP-017-020 | F2B290443-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B290443 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 181-192 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2C020000-024B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.183 pCi/g | 0.0727 pCi/g | 5.04 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-017-001 | 2.13 | Fail |
| 06-PD1-GMP-017-002 | -0.23 | Fail |
| 06-PD1-GMP-017-003 | 1.54 | Fail |
| 06-PD1-GMP-017-004 | 1.56 | Fail |
| 06-PD1-GMP-017-005 | 1.64 | Fail |
| 06-PD1-GMP-017-006 | 0.87 | Fail |
| 06-PD1-GMP-017-007 | 1.30 | Fail |
| 06-PD1-GMP-017-008 | 1.89 | Fail |
| 06-PD1-GMP-017-009 | 0.75 | Fail |
| 06-PD1-GMP-017-010 | 1.31 | Fail |
| 06-PD1-GMP-017-011 | 1.38 | Fail |
| 06-PD1-GMP-017-012 | 2.00 | Fail |
| 06-PD1-GMP-017-013 | 1.48 | Fail |
| 06-PD1-GMP-017-014 | 1.14 | Fail |
| 06-PD1-GMP-017-015 | 2.37 | Fail |
| 06-PD1-GMP-017-016 | 2.84 | Pass |
| 06-PD1-GMP-017-017 | 1.28 | Fail |
| 06-PD1-GMP-017-018 | 2.46 | Fail |
| 06-PD1-GMP-017-019 | 2.88 | Pass |
| 06-PD1-GMP-017-020 | 0.11 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-017-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B290443

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-017-001 | F2B290443-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-002 | F2B290443-002 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-003 | F2B290443-003 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-004 | F2B290443-004 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-005 | F2B290443-005 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-006 | F2B290443-006 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-007 | F2B290443-007 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-008 | F2B290443-008 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-009 | F2B290443-009 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-010 | F2B290443-010 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-011 | F2B290443-011 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-012 | F2B290443-012 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-013 | F2B290443-013 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-014 | F2B290443-014 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-015 | F2B290443-015 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-017 | F2B290443-017 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-018 | F2B290443-018 | Lead-214 | B6 | J |
| 06-PD1-GMP-017-020 | F2B290443-020 | Lead-214 | B6 | J |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 24, 2012

SDG NUMBER: F2B290448
SAMPLING DATE(S): March 04, 2011

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-017-001 | F2B290448-001 | Soil | X |
| 06-PD1-GMP-017-005 | F2B290448-002 | Soil | X |
| 06-PD1-GMP-017-017 | F2B290448-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B290448 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 192 days. Due to the relatively long half-life of the analyte of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2C010000-060B for the following analyte:

| <u>Analyte</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|-----------------|-----------------------|---------------|----------------|
| Total Strontium | 0.126 pCi/g | 0.090 pCi/g | 2.80 |

Samples 06-PD1-GMP-017-001 and 06-PD1-GMP-017-005 Total Strontium results were both detected but below the reporting limit; therefore, no data qualification was necessary. Non-detected sample results did not require data qualification.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-017-001 of this SDG. All MD criteria met laboratory requirements. No data qualification was necessary.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B290448

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2B290450
SAMPLING DATE(S): February 10, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-040-107 | F2B290450-007 | Soil | X |
| 06-PD1-GMP-040-120 | F2B290450-008 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B290450 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-026-198 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B290450

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 23, 2012

SDG NUMBER: F2B290451
SAMPLING DATE(S): February 02, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-017-021 | F2B290451-001 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2B290451 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-017-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2B290451

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EML SR-03-RC Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Strontium-90)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2C220461
SAMPLING DATE(S): February 10, 2012

SAMPLE(S):

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Sr-90</u> |
|------------------------|---------------------|---------------|--------------|
| 06-PD1-GMP-040-123 | F2C220461-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2C220461 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EML SR-03-RC Modified for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F2C220460-001 of SDG F2C220460. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Strontium-90 on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following sample result was assigned a validation qualifier of non-detected and estimated (UJ) for critical value / method detection limit exceeding the stated reporting limit.

| <u>Client Sample ID</u> | <u>Analyte</u> | <u>Detection Limit</u> | <u>Reporting Limit</u> |
|-------------------------|----------------|------------------------|------------------------|
| 06-PD1-GMP-040-123 | Strontium-90 | 0.327 pCi/g | 0.320 pCi/g |

All other Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2C220461

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| 06-PD1-GMP-040-123 | F2C220461-002 | Strontium-90 | P | UJ |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2C300426
SAMPLING DATE(S): January 21, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-056-103 | F2C300426-001 | Soil | X |
| 06-PD1-GMP-056-113 | F2C300426-002 | Soil | X |
| 06-PD1-GMP-056-117 | F2C300426-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2C300426 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-056-103 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2C300426

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012
SDG NUMBER: F2H280423
SAMPLING DATE(S): August 01, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-001-321 | F2H280423-001 | Soil | X |
| 06-PD1-GMP-001-322 | F2H280423-002 | Soil | X |
| 06-PD1-GMP-001-323 | F2H280423-003 | Soil | X |
| 06-PD1-GMP-001-324 | F2H280423-004 | Soil | X |
| 06-PD1-GMP-001-325 | F2H280423-005 | Soil | X |
| 06-PD1-GMP-001-326 | F2H280423-006 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2H280423 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-001-321 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2H280423

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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4070 Balleycastle Lane, Duluth, GA 30097

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(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F2H280428
SAMPLING DATE(S): August 01, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-001-301 | F2H280428-001 | Soil | X |
| 06-PD1-GMP-001-302 | F2H280428-002 | Soil | X |
| 06-PD1-GMP-001-303 | F2H280428-003 | Soil | X |
| 06-PD1-GMP-001-304 | F2H280428-004 | Soil | X |
| 06-PD1-GMP-001-305 | F2H280428-005 | Soil | X |
| 06-PD1-GMP-001-306 | F2H280428-006 | Soil | X |
| 06-PD1-GMP-001-307 | F2H280428-007 | Soil | X |
| 06-PD1-GMP-001-308 | F2H280428-008 | Soil | X |
| 06-PD1-GMP-001-309 | F2H280428-009 | Soil | X |
| 06-PD1-GMP-001-310 | F2H280428-010 | Soil | X |
| 06-PD1-GMP-001-311 | F2H280428-011 | Soil | X |
| 06-PD1-GMP-001-312 | F2H280428-012 | Soil | X |
| 06-PD1-GMP-001-313 | F2H280428-013 | Soil | X |
| 06-PD1-GMP-001-314 | F2H280428-014 | Soil | X |
| 06-PD1-GMP-001-315 | F2H280428-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-001-316 | F2H280428-016 | Soil | X |
| 06-PD1-GMP-001-317 | F2H280428-017 | Soil | X |
| 06-PD1-GMP-001-318 | F2H280428-018 | Soil | X |
| 06-PD1-GMP-001-319 | F2H280428-019 | Soil | X |
| 06-PD1-GMP-001-320 | F2H280428-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2H280428 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-001-301 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2H280428

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: October 12, 2012

SDG NUMBER: F2H280432
SAMPLING DATE(S): August 01, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-001-311 | F2H280432-001 | Soil | X |
| 06-PD1-GMP-001-317 | F2H280432-002 | Soil | X |
| 06-PD1-GMP-001-321 | F2H280432-003 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2H280432 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample F2H280431-001 of SDG F2H280431. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2H280432

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2J250452
SAMPLING DATE(S): January 21, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-024-221 | F2J250452-007 | Soil | X |
| 06-PD1-GMP-024-222 | F2J250452-008 | Soil | X |
| 06-PD1-GMP-024-225 | F2J250452-011 | Soil | X |
| 06-PD1-GMP-025-305 | F2J250452-014 | Soil | X |
| 06-PD1-GMP-025-314 | F2J250452-016 | Soil | X |
| 06-PD1-GMP-025-317 | F2J250452-017 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250452 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-024-221 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250452

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2J250453
SAMPLING DATE(S): August 21, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-075-106 | F2J250453-014 | Soil | X |
| 06-PD1-GMP-075-114 | F2J250453-015 | Soil | X |
| 06-PD1-GMP-075-115 | F2J250453-016 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-030-217 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250453

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: December 08, 2012

SDG NUMBER: F2J250453
SAMPLING DATE(S): August 02, 2012 - August 04, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-030-303 | F2J250453-004 | Soil | X |
| 06-PD1-GMP-030-315 | F2J250453-005 | Soil | X |
| 06-PD1-GMP-035-205 | F2J250453-006 | Soil | X |
| 06-PD1-GMP-035-209 | F2J250453-007 | Soil | X |
| 06-PD1-GMP-059-301 | F2J250453-008 | Soil | X |
| 06-PD1-GMP-059-308 | F2J250453-010 | Soil | X |
| 06-PD1-GMP-059-320 | F2J250453-011 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250453 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on samples 06-PD1-GMP-030-217 and 06-PD1-GMP-059-320 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F2J250453

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2J250456
SAMPLING DATE(S): August 21, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-076-103 | F2J250456-004 | Soil | X |
| 06-PD1-GMP-076-110 | F2J250456-006 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250456 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-076-065 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250456

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2J250457
SAMPLING DATE(S): September 14, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-077-021 | F2J250457-001 | Soil | X |
| 06-PD1-GMP-077-022 | F2J250457-002 | Soil | X |
| 06-PD1-GMP-077-023 | F2J250457-003 | Soil | X |
| 06-PD1-GMP-077-024 | F2J250457-004 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250457 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-077-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250457

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 905.0 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gas Flow Proportional Counting (Total Strontium)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2J250458
SAMPLING DATE(S): August 04, 2012 – September 12, 2012

SAMPLES:

| <u>Client Sample #</u> | <u>Lab Sample #</u> | <u>Matrix</u> | <u>Total Sr</u> |
|------------------------|---------------------|---------------|-----------------|
| 06-PD1-GMP-076-124 | F2J250458-001 | Soil | X |
| 06-PD1-GMP-077-005 | F2J250458-003 | Soil | X |
| 06-PD1-GMP-077-019 | F2J250458-007 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250458 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

TOTAL STRONTIUM

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 Modified for the Total Strontium analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-076-065 of SDG F2J250456. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Total Strontium included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis was not performed for Total Strontium on this project. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria met laboratory requirements. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250458

| Field Sample ID | Laboratory Sample ID | Analyte | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250462
SAMPLING DATE(S): August 02, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-035-207 | F2J250462-001 | Soil | X |
| 06-PD1-GMP-035-208 | F2J250462-002 | Soil | X |
| 06-PD1-GMP-035-209 | F2J250462-003 | Soil | X |
| 06-PD1-GMP-035-210 | F2J250462-004 | Soil | X |
| 06-PD1-GMP-035-211 | F2J250462-005 | Soil | X |
| 06-PD1-GMP-035-212 | F2J250462-006 | Soil | X |
| 06-PD1-GMP-035-213 | F2J250462-007 | Soil | X |
| 06-PD1-GMP-035-214 | F2J250462-008 | Soil | X |
| 06-PD1-GMP-035-215 | F2J250462-009 | Soil | X |
| 06-PD1-GMP-035-216 | F2J250462-010 | Soil | X |
| 06-PD1-GMP-035-217 | F2J250462-011 | Soil | X |
| 06-PD1-GMP-035-218 | F2J250462-012 | Soil | X |
| 06-PD1-GMP-035-219 | F2J250462-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-035-220 | F2J250462-014 | Soil | X |
| 06-PD1-GMP-059-301 | F2J250462-015 | Soil | X |
| 06-PD1-GMP-059-302 | F2J250462-016 | Soil | X |
| 06-PD1-GMP-059-304 | F2J250462-017 | Soil | X |
| 06-PD1-GMP-059-305 | F2J250462-018 | Soil | X |
| 06-PD1-GMP-059-306 | F2J250462-019 | Soil | X |
| 06-PD1-GMP-059-307 | F2J250462-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250462 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-035-216 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250462

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250463
SAMPLING DATE(S): August 02, 2012 - August 22, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-059-308 | F2J250463-001 | Soil | X |
| 06-PD1-GMP-059-309 | F2J250463-002 | Soil | X |
| 06-PD1-GMP-059-310 | F2J250463-003 | Soil | X |
| 06-PD1-GMP-059-311 | F2J250463-004 | Soil | X |
| 06-PD1-GMP-059-312 | F2J250463-005 | Soil | X |
| 06-PD1-GMP-059-313 | F2J250463-006 | Soil | X |
| 06-PD1-GMP-059-314 | F2J250463-007 | Soil | X |
| 06-PD1-GMP-059-315 | F2J250463-008 | Soil | X |
| 06-PD1-GMP-059-316 | F2J250463-009 | Soil | X |
| 06-PD1-GMP-059-317 | F2J250463-010 | Soil | X |
| 06-PD1-GMP-059-318 | F2J250463-011 | Soil | X |
| 06-PD1-GMP-059-319 | F2J250463-012 | Soil | X |

| | | | |
|--------------------|-----------------|---------------|--------------|
| Client | Lab | Sample | Gamma |
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-059-320 | F2J250463-013 | Soil | X |
| 06-PD1-GMP-059-325 | F2J250463-014 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250463 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-059-311 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250463

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level IV
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013
SDG NUMBER: F2J250463
SAMPLING DATE(S): August 21, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-075-101 | F2J250463-015 | Soil | X |
| 06-PD1-GMP-075-102 | F2J250463-016 | Soil | X |
| 06-PD1-GMP-075-103 | F2J250463-017 | Soil | X |
| 06-PD1-GMP-075-104 | F2J250463-018 | Soil | X |
| 06-PD1-GMP-075-105 | F2J250463-019 | Soil | X |
| 06-PD1-GMP-075-106 | F2J250463-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250463 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-059-311 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - F2J250463

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013
SDG NUMBER: F2J250465
SAMPLING DATE(S): August 21, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-075-107 | F2J250465-001 | Soil | X |
| 06-PD1-GMP-075-108 | F2J250465-002 | Soil | X |
| 06-PD1-GMP-075-109 | F2J250465-003 | Soil | X |
| 06-PD1-GMP-075-110 | F2J250465-004 | Soil | X |
| 06-PD1-GMP-075-111 | F2J250465-005 | Soil | X |
| 06-PD1-GMP-075-112 | F2J250465-006 | Soil | X |
| 06-PD1-GMP-075-113 | F2J250465-007 | Soil | X |
| 06-PD1-GMP-075-114 | F2J250465-008 | Soil | X |
| 06-PD1-GMP-075-115 | F2J250465-009 | Soil | X |
| 06-PD1-GMP-075-117 | F2J250465-010 | Soil | X |
| 06-PD1-GMP-075-118 | F2J250465-011 | Soil | X |
| 06-PD1-GMP-075-119 | F2J250465-012 | Soil | X |
| 06-PD1-GMP-075-120 | F2J250465-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-075-121 | F2J250465-014 | Soil | X |
| 06-PD1-GMP-076-101 | F2J250465-015 | Soil | X |
| 06-PD1-GMP-076-102 | F2J250465-016 | Soil | X |
| 06-PD1-GMP-076-103 | F2J250465-017 | Soil | X |
| 06-PD1-GMP-076-104 | F2J250465-018 | Soil | X |
| 06-PD1-GMP-076-105 | F2J250465-019 | Soil | X |
| 06-PD1-GMP-076-106 | F2J250465-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-075-107 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250465

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|------------------------|--------------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013
SDG NUMBER: F2J250467
SAMPLING DATE(S): August 04, 2012 – September 12, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-076-108 | F2J250467-001 | Soil | X |
| 06-PD1-GMP-076-109 | F2J250467-002 | Soil | X |
| 06-PD1-GMP-076-110 | F2J250467-003 | Soil | X |
| 06-PD1-GMP-076-111 | F2J250467-004 | Soil | X |
| 06-PD1-GMP-076-113 | F2J250467-005 | Soil | X |
| 06-PD1-GMP-076-114 | F2J250467-006 | Soil | X |
| 06-PD1-GMP-076-115 | F2J250467-007 | Soil | X |
| 06-PD1-GMP-076-116 | F2J250467-008 | Soil | X |
| 06-PD1-GMP-076-117 | F2J250467-009 | Soil | X |
| 06-PD1-GMP-076-118 | F2J250467-010 | Soil | X |
| 06-PD1-GMP-076-120 | F2J250467-011 | Soil | X |
| 06-PD1-GMP-076-124 | F2J250467-012 | Soil | X |
| 06-PD1-GMP-076-125 | F2J250467-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-076-126 | F2J250467-014 | Soil | X |
| 06-PD1-GMP-077-001 | F2J250467-015 | Soil | X |
| 06-PD1-GMP-077-002 | F2J250467-016 | Soil | X |
| 06-PD1-GMP-077-003 | F2J250467-017 | Soil | X |
| 06-PD1-GMP-077-005 | F2J250467-018 | Soil | X |
| 06-PD1-GMP-077-006 | F2J250467-019 | Soil | X |
| 06-PD1-GMP-077-008 | F2J250467-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250467 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-076-108 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250467

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013
SDG NUMBER: F2J250468
SAMPLING DATE(S): August 04, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-077-009 | F2J250468-001 | Soil | X |
| 06-PD1-GMP-077-010 | F2J250468-002 | Soil | X |
| 06-PD1-GMP-077-011 | F2J250468-003 | Soil | X |
| 06-PD1-GMP-077-014 | F2J250468-004 | Soil | X |
| 06-PD1-GMP-077-015 | F2J250468-005 | Soil | X |
| 06-PD1-GMP-077-016 | F2J250468-006 | Soil | X |
| 06-PD1-GMP-077-017 | F2J250468-007 | Soil | X |
| 06-PD1-GMP-077-018 | F2J250468-008 | Soil | X |
| 06-PD1-GMP-077-019 | F2J250468-009 | Soil | X |
| 06-PD1-GMP-077-020 | F2J250468-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250468 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-077-009 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250468

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250469
SAMPLING DATE(S): March 31, 2011 - August 01, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-022-010 | F2J250469-001 | Soil | X |
| 06-PD1-GMP-022-011 | F2J250469-002 | Soil | X |
| 06-PD1-GMP-022-012 | F2J250469-003 | Soil | X |
| 06-PD1-GMP-022-013 | F2J250469-004 | Soil | X |
| 06-PD1-GMP-022-014 | F2J250469-005 | Soil | X |
| 06-PD1-GMP-022-015 | F2J250469-006 | Soil | X |
| 06-PD1-GMP-022-016 | F2J250469-007 | Soil | X |
| 06-PD1-GMP-022-017 | F2J250469-008 | Soil | X |
| 06-PD1-GMP-022-018 | F2J250469-009 | Soil | X |
| 06-PD1-GMP-022-019 | F2J250469-010 | Soil | X |
| 06-PD1-GMP-022-020 | F2J250469-011 | Soil | X |
| 06-PD1-GMP-022-021 | F2J250469-012 | Soil | X |
| 06-PD1-GMP-022-022 | F2J250469-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-022-023 | F2J250469-014 | Soil | X |
| 06-PD1-GMP-022-024 | F2J250469-015 | Soil | X |
| 06-PD1-GMP-022-025 | F2J250469-016 | Soil | X |
| 06-PD1-GMP-022-026 | F2J250469-017 | Soil | X |
| 06-PD1-GMP-022-027 | F2J250469-018 | Soil | X |
| 06-PD1-GMP-022-028 | F2J250469-019 | Soil | X |
| 06-PD1-GMP-022-029 | F2J250469-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250469 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates for samples 1-15 exceeded the laboratory holding time criteria of 180 days by 397 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-022-010 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250469

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250470
SAMPLING DATE(S): August 01, 2012 - September 14, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-022-030 | F2J250470-001 | Soil | X |
| 06-PD1-GMP-022-031 | F2J250470-002 | Soil | X |
| 06-PD1-GMP-022-033 | F2J250470-003 | Soil | X |
| 06-PD1-GMP-022-040 | F2J250470-004 | Soil | X |
| 06-PD1-GMP-024-204 | F2J250470-005 | Soil | X |
| 06-PD1-GMP-024-205 | F2J250470-006 | Soil | X |
| 06-PD1-GMP-024-206 | F2J250470-007 | Soil | X |
| 06-PD1-GMP-024-208 | F2J250470-008 | Soil | X |
| 06-PD1-GMP-024-209 | F2J250470-009 | Soil | X |
| 06-PD1-GMP-024-211 | F2J250470-010 | Soil | X |
| 06-PD1-GMP-024-212 | F2J250470-011 | Soil | X |
| 06-PD1-GMP-024-213 | F2J250470-012 | Soil | X |
| 06-PD1-GMP-024-214 | F2J250470-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-024-215 | F2J250470-014 | Soil | X |
| 06-PD1-GMP-024-216 | F2J250470-015 | Soil | X |
| 06-PD1-GMP-024-217 | F2J250470-016 | Soil | X |
| 06-PD1-GMP-024-218 | F2J250470-017 | Soil | X |
| 06-PD1-GMP-024-219 | F2J250470-018 | Soil | X |
| 06-PD1-GMP-024-220 | F2J250470-019 | Soil | X |
| 06-PD1-GMP-024-221 | F2J250470-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250470 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-022-030 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250470

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012
SDG NUMBER: F2J250471
SAMPLING DATE(S): August 04, 2012 - September 14, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-024-222 | F2J250471-001 | Soil | X |
| 06-PD1-GMP-024-225 | F2J250471-004 | Soil | X |
| 06-PD1-GMP-025-301 | F2J250471-005 | Soil | X |
| 06-PD1-GMP-025-302 | F2J250471-006 | Soil | X |
| 06-PD1-GMP-025-303 | F2J250471-007 | Soil | X |
| 06-PD1-GMP-025-304 | F2J250471-008 | Soil | X |
| 06-PD1-GMP-025-305 | F2J250471-009 | Soil | X |
| 06-PD1-GMP-025-307 | F2J250471-010 | Soil | X |
| 06-PD1-GMP-025-308 | F2J250471-011 | Soil | X |
| 06-PD1-GMP-025-309 | F2J250471-012 | Soil | X |
| 06-PD1-GMP-025-310 | F2J250471-013 | Soil | X |
| 06-PD1-GMP-025-311 | F2J250471-014 | Soil | X |
| 06-PD1-GMP-025-312 | F2J250471-015 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-025-313 | F2J250471-016 | Soil | X |
| 06-PD1-GMP-025-314 | F2J250471-017 | Soil | X |
| 06-PD1-GMP-025-315 | F2J250471-018 | Soil | X |
| 06-PD1-GMP-025-316 | F2J250471-019 | Soil | X |
| 06-PD1-GMP-025-317 | F2J250471-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250471 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-024-222 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250471

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250472
SAMPLING DATE(S): August 04, 2012 - September 14, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-025-319 | F2J250472-001 | Soil | X |
| 06-PD1-GMP-025-321 | F2J250472-002 | Soil | X |
| 06-PD1-GMP-025-322 | F2J250472-003 | Soil | X |
| 06-PD1-GMP-025-323 | F2J250472-004 | Soil | X |
| 06-PD1-GMP-030-301 | F2J250472-005 | Soil | X |
| 06-PD1-GMP-030-302 | F2J250472-006 | Soil | X |
| 06-PD1-GMP-030-303 | F2J250472-007 | Soil | X |
| 06-PD1-GMP-030-304 | F2J250472-008 | Soil | X |
| 06-PD1-GMP-030-305 | F2J250472-009 | Soil | X |
| 06-PD1-GMP-030-306 | F2J250472-010 | Soil | X |
| 06-PD1-GMP-030-307 | F2J250472-011 | Soil | X |
| 06-PD1-GMP-030-308 | F2J250472-012 | Soil | X |
| 06-PD1-GMP-030-309 | F2J250472-013 | Soil | X |

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-030-310 | F2J250472-014 | Soil | X |
| 06-PD1-GMP-030-311 | F2J250472-015 | Soil | X |
| 06-PD1-GMP-030-312 | F2J250472-016 | Soil | X |
| 06-PD1-GMP-030-313 | F2J250472-017 | Soil | X |
| 06-PD1-GMP-030-314 | F2J250472-018 | Soil | X |
| 06-PD1-GMP-030-315 | F2J250472-019 | Soil | X |
| 06-PD1-GMP-030-316 | F2J250472-020 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250472 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-025-319 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250472

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

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(770) 232-5082 (Fax)

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DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: December 07, 2012

SDG NUMBER: F2J250473
SAMPLING DATE(S): August 02, 2012 - August 04, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|-----------------|---------------|--------------|
| <u>Sample #</u> | <u>Sample #</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-030-317 | F2J250473-001 | Soil | X |
| 06-PD1-GMP-030-318 | F2J250473-002 | Soil | X |
| 06-PD1-GMP-030-319 | F2J250473-003 | Soil | X |
| 06-PD1-GMP-030-320 | F2J250473-004 | Soil | X |
| 06-PD1-GMP-035-201 | F2J250473-005 | Soil | X |
| 06-PD1-GMP-035-202 | F2J250473-006 | Soil | X |
| 06-PD1-GMP-035-203 | F2J250473-007 | Soil | X |
| 06-PD1-GMP-035-204 | F2J250473-008 | Soil | X |
| 06-PD1-GMP-035-205 | F2J250473-009 | Soil | X |
| 06-PD1-GMP-035-206 | F2J250473-010 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2J250473 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-030-317 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2J250473

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

VALIDATA

Chemical Services, Inc.

4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2K150425
SAMPLING DATE(S): October 09, 2012

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-024-228 | F2K150425-001 | Soil | X |
| 06-PD1-GMP-024-229 | F2K150425-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2K150425 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation, and Holding Time criteria were met. No data qualification was necessary.

Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved “tuna can” geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

The blank activity exceeded the 2.58 laboratory QC limit in method blank F2K160000-054B for the following isotope:

| <u>Isotope</u> | <u>Blank Activity</u> | <u>2s TPU</u> | <u>Z-Score</u> |
|----------------|-----------------------|---------------|----------------|
| Lead-214 | 0.0894 pCi/g | 0.0618 pCi/g | 2.89 |

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J).

| <u>Client Sample ID</u> | <u>Z-DER</u> | <u>Pass/Fail</u> |
|-------------------------|--------------|------------------|
| 06-PD1-GMP-024-228 | 1.17 | Fail |
| 06-PD1-GMP-024-229 | 1.14 | Fail |

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-024-228 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2K150425

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| 06-PD1-GMP-024-228 | F2K150425-001 | Lead-214 | B6 | J |
| 06-PD1-GMP-024-229 | F2K150425-002 | Lead-214 | B6 | J |

VALIDATA

Chemical Services, Inc.

4070 Balleycastle Lane, Duluth, GA 30097

(770) 232-0130

(770) 232-5082 (Fax)

www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY: Shaw Environment & Infrastructure, Inc.
SITE NAME: Hunters Point – CTO-006
PROJECT NO.: 136250-056
CONTRACTED LAB: TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.: N62473-08-D-8822
QA/QC LEVEL: EPA Level III
ANALYTICAL METHODS: EPA 901.1 Modified
VALIDATION GUIDELINES: National Functional Guidelines for Inorganic Data Review,
2010, Laboratory Limits, Professional Judgment
SAMPLE MATRIX: Soil
TYPES OF ANALYSES: Gamma Spectroscopy (Cesium-137, Radium-226 & Daughters)
DATA VALIDATION DATE: January 08, 2013

SDG NUMBER: F2K160444
SAMPLING DATE(S): October 13, 2011

SAMPLES:

| Client | Lab | Sample | Gamma |
|--------------------|------------------|---------------|--------------|
| <u>Sample ID</u> | <u>Sample ID</u> | <u>Matrix</u> | <u>Spec.</u> |
| 06-PD1-GMP-071-021 | F2K160444-001 | Soil | X |
| 06-PD1-GMP-071-022 | F2K160444-002 | Soil | X |

Suffix Codes: D = FIELD DUPLICATE, RE = REANALYSIS, DL = DILUTION,
MS = MATRIX SPIKE, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

| Qualifier | Definition |
|--------------|---|
| No qualifier | Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria. |
| J | The isotope was detected at the reported concentration; the quantitation is an estimate. |
| R | The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. |
| U | Not considered detected. The associated number is the reported concentration. |
| UJ | Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise. |

DATA VALIDATION SUMMARY

TestAmerica - SDG F2K160444 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 Modified for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

The sample analysis dates exceeded the laboratory holding time criteria of 180 days by 244-245 days. Due to the relatively long half-lives of the isotopes of concern, this exceedance should not adversely affect sample results. In the validator's professional judgment, no data qualification was necessary.

All other Sample Receipt and Preparation criteria were met. No data qualification was necessary. Note: Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine laboratory sample preparation process of drying and grinding the sample prior to filling the container. To promote the 21 day ingrowth period where Bismuth-214 reaches secular equilibrium with Radon-222 and the parent Radium-226, the samples were counted by the lab as received from the client in the lab approved "tuna can" geometry.

II.) Instrument Performance:

All Instrument Performance criteria met laboratory requirements. No data qualification was necessary.

III.) Calibration:

All Calibration criteria met laboratory requirements. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria met laboratory requirements. No data qualification was necessary.

V.) Blanks:

All Blank criteria met laboratory requirements. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria met laboratory requirements. No data qualification was necessary.

VII.) Laboratory Duplicate (MD):

MD sample analysis was performed on sample 06-PD1-GMP-071-021 of this SDG. All MD criteria met laboratory requirements. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not required for Gamma Spectroscopy analysis on this project.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - F2K160444

| Field Sample ID | Laboratory Sample ID | Isotope | Reason Code | Validated Qualifier |
|------------------------|-----------------------------|----------------|--------------------|----------------------------|
| N/A | N/A | N/A | N/A | None |

Appendix H

Work Area 24 Report Index

Hunters Point Naval Shipyard, San Francisco, California
Contract Number: N62473-08-D-8822, Task Order: 0006

Work Area 24 Reports

| Date | Document Control Number | Title |
|----------------|-------------------------|---|
| March 2013 | SHAW-8822-0006-0423 | FINAL, FINAL STATUS SURVEY REPORT Former Building 313, 313A, and 322 Sites |
| October 2012 | SHAW-8822-0006-0394 | FINAL, FINAL STATUS SURVEY REPORT Parcel D-1 Building 274 |
| September 2012 | SHAW-8822-0006-0391 | FINAL WORK PACKAGE 102 SURVEY UNIT 250 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0391 | FINAL WORK PACKAGE 102, SURVEY UNIT 251 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0395 | FINAL WORK PACKAGE 103, SURVEY UNIT 252 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0401 | FINAL WORK PACKAGE 105, SURVEY UNIT 253 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| January 2013 | SHAW-8822-0006-0330.R1 | FINAL WORK PACKAGE 107, SURVEY UNIT 254 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0401 | FINAL WORK PACKAGE 105, SURVEY UNIT 255 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| January 2013 | SHAW-8822-0006-0330.R1 | FINAL WORK PACKAGE 107, SURVEY UNIT 256 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0395 | FINAL WORK PACKAGE 103, SURVEY UNIT 257 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0395 | FINAL WORK PACKAGE 103, SURVEY UNIT 259 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0395 | FINAL WORK PACKAGE 103, SURVEY UNIT 261 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0390 | FINAL WORK PACKAGE 101, SURVEY UNIT 264 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| January 2013 | SHAW-8822-0006-0330.R1 | FINAL WORK PACKAGE 107, SURVEY UNIT 265 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0391 | FINAL WORK PACKAGE 102, SURVEY UNIT 272 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0391 | FINAL WORK PACKAGE 102, SURVEY UNIT 273 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0390 | FINAL WORK PACKAGE 101, SURVEY UNIT 274 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0390 | FINAL WORK PACKAGE 101, SURVEY UNIT 277 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |

Appendix I

Work Area 25 Report Index

Hunters Point Naval Shipyard, San Francisco, California
Contract Number: N62473-08-D-8822, Task Order: 0006

Work Area 25 Reports

| Date | Document Control Number | Title |
|--------------|-------------------------|---|
| January 2013 | SHAW-8822-0006-0330.R1 | FINAL WORK PACKAGE 107 SURVEY UNIT 283 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |

Appendix J
Work Area 28 Report Index

Hunters Point Naval Shipyard, San Francisco, California
Contract Number: N62473-08-D-8822, Task Order: 0006

Work Area 28 Reports

| Date | Document Control Number | Title |
|----------------|-------------------------|---|
| March 2013 | SHAW-8822-0006-0422 | FINAL, FINAL STATUS SURVEY REPORT Building 383 Area |
| September 2012 | SHAW-8822-0006-0396 | FINAL WORK PACKAGE 104, SURVEY UNIT 258 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0401 | FINAL WORK PACKAGE 105, SURVEY UNIT 262 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0401 | FINAL WORK PACKAGE 105, SURVEY UNIT 270 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0402 | FINAL WORK PACKAGE 106, SURVEY UNIT 271 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0390 | FINAL WORK PACKAGE 101, SURVEY UNIT 276 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0395 | FINAL WORK PACKAGE 103, SURVEY UNIT 278 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0402 | FINAL WORK PACKAGE 106, SURVEY UNIT 279 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0402 | FINAL WORK PACKAGE 106, SURVEY UNIT 280 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0402 | FINAL WORK PACKAGE 106, SURVEY UNIT 281 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| October 2012 | SHAW-8822-0006-0402 | FINAL WORK PACKAGE 106, SURVEY UNIT 282 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| January 2014 | SHAW-8822-0006-0436 | FINAL, FINAL STATUS SURVEY REPORT Gun Mole Pier Area |

Appendix K

Work Area 29 Report Index

Hunters Point Naval Shipyard, San Francisco, California
Contract Number: N62473-08-D-8822, Task Order: 0006

Work Area 29 Reports

| Date | Document Control Number | Title |
|----------------|-------------------------|---|
| October 2012 | SHAW-8822-0006-0401 | FINAL WORK PACKAGE 105, SURVEY UNIT 266 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0390 | FINAL WORK PACKAGE 101, SURVEY UNIT 267 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0396 | FINAL WORK PACKAGE 104, SURVEY UNIT 268 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0396 | FINAL WORK PACKAGE 104, SURVEY UNIT 269 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0391 | FINAL WORK PACKAGE 102, SURVEY UNIT 275 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |

Appendix L
Work Area 30 Report Index

Hunters Point Naval Shipyard, San Francisco, California
Contract Number: N62473-08-D-8822, Task Order: 0006

Work Area 30 Reports

| Date | Document Control Number | Title |
|----------------|-------------------------|---|
| September 2012 | SHAW-8822-0006-0396 | FINAL WORK PACKAGE 104, SURVEY UNIT 260 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| September 2012 | SHAW-8822-0006-0396 | FINAL WORK PACKAGE 104, SURVEY UNIT 263 PROJECT REPORT Parcel D-1 Storm Drain and Sanitary Sewer Removal |
| June 2013 | SHAW-8822-0006-0430 | FINAL, FINAL STATUS SURVEY REPORT South Pier Area |

Appendix M
Radiological Data for Sediment Samples
Collected from Parcel D-1 Piping

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 18:02:49
New World Technology Spectrum name: 2S000200.An1

Sample description
Parcel D1 06-PD1PI-0001-001 353g
11/04/10 11:15

Acquisition information
Start time: 29-Nov-2010 16:30:10
Live time: 5400
Real time: 5408

```
***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Nucl ide      Time of Count      Uncertainty 2 Sigma
              Activity          Counting      Total
              pCi /g            pCi /g        pCi /g
              MDA
              pCi /g
-----
Ac-228        4.0520E-01      1.4564E-01      1.4831E-01      0.143E+00
AM-241 #A     1.8461E-03      2.2039E-01      2.2039E-01      0.185E+00
Bi-212        5.0353E-01      2.7422E-01      2.7636E-01      0.195E+00
BI-214        8.1502E-01      1.2682E-01      1.3792E-01      0.462E-01
CO-60 #A     -3.4998E-02      1.1712E-01      1.1714E-01      0.263E-01
CS-137        1.0594E-01      4.4282E-02      4.4851E-02      0.324E-01
EU-152 C      1.1016E-01      1.0076E-01      1.0119E-01      0.866E-01
EU-154 A      5.7520E-02      6.4908E-02      6.5091E-02      0.667E-01
K-40          1.9084E+01      1.2798E+00      1.8441E+00      0.154E+00
Pa-234 C      1.5058E-01      1.0250E-01      1.0303E-01      0.805E-01
Pb-210 #C     0.0000E+00      6.2663E+00      6.2663E+00      0.000E+00
Pb-212        4.5484E-01      8.2498E-02      8.9473E-02      0.583E-01
PB-214        6.7759E-01      1.3546E-01      1.4394E-01      0.649E-01
RA-226 A      2.5944E-01      8.4718E-01      8.4741E-01      0.700E+00
Th-230 #A     -1.8159E+01      1.2411E+01      1.2411E+01      0.549E+01
Th-234 #A     -1.0166E-01      1.4659E+00      1.4659E+00      0.117E+01
TI-208        2.1019E-01      5.2657E-02      5.4466E-02      0.248E-01
U-235 C       6.3991E-02      7.7434E-02      7.7585E-02      0.443E-01
```

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

```
----- S U M M A R Y -----
Total Activity ( 32.4 to 2596.7 keV) 2.226E+01 pCi /g
```

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 18:04:50
New World Technology Spectrum name: 3S000190.An1

Sample description
Parcel D1 06-PD1PI-0001-002 348g
11/04/10 11:30

Acquisition information
Start time: 29-Nov-2010 16:31:23
Live time: 5400
Real time: 5405

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|------------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 2.5326E-01 | 1.4942E-01 | 1.5044E-01 | 0.792E-01 |
| AM-241 A | 4.9794E-02 | 6.9323E-02 | 6.9464E-02 | 0.557E-01 |
| Bi -212 C | 2.9978E-01 | 2.7423E-01 | 2.7499E-01 | 0.205E+00 |
| BI -214 | 1.0309E+00 | 1.5786E-01 | 1.7211E-01 | 0.599E-01 |
| CO-60 #A | -3.7240E-02 | 1.7619E-01 | 1.7621E-01 | 0.213E-01 |
| CS-137 | 5.3627E-02 | 4.3285E-02 | 4.3435E-02 | 0.330E-01 |
| EU-152 #A | -3.3889E-01 | 1.4624E+00 | 1.4627E+00 | 0.935E-01 |
| EU-154 C | 1.1228E-01 | 1.0414E-01 | 1.0457E-01 | 0.567E-01 |
| K-40 | 1.9472E+01 | 1.4562E+00 | 1.9889E+00 | 0.627E+00 |
| Pa-234 | 3.5193E-01 | 2.1624E-01 | 2.1760E-01 | 0.163E+00 |
| Pb-210 | 1.0628E+00 | 7.4084E-01 | 7.4549E-01 | 0.591E+00 |
| Pb-212 | 1.3179E-01 | 7.6138E-02 | 7.6796E-02 | 0.624E-01 |
| PB-214 | 9.7190E-01 | 1.3047E-01 | 1.4798E-01 | 0.561E-01 |
| RA-226 | 1.1059E+00 | 9.0621E-01 | 9.1005E-01 | 0.734E+00 |
| Th-230 #A | -4.7823E+00 | 6.8117E+00 | 6.8117E+00 | 0.170E+01 |
| Th-234 | 1.5603E+00 | 1.3477E+00 | 1.3560E+00 | 0.947E+00 |
| TI -208 #A | -4.0862E-01 | 3.8089E-01 | 3.8185E-01 | 0.724E-01 |
| U-235 C | 9.4186E-02 | 6.3965E-02 | 6.4360E-02 | 0.515E-01 |

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 2.599E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 23:56:15
New World Technology Spectrum name: 2S000205.An1

Sample description
Parcel D1 06-PD1PI-0002-001 342g
11/09/10 10:00

Acquisition information
Start time: 29-Nov-2010 23:09:04
Live time: 2700
Real time: 2704

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | C | 4.8092E-01 | 2.4428E-01 | 2.4653E-01 | 0.213E+00 |
| AM-241 | A | 1.4464E-01 | 4.1524E-01 | 4.1544E-01 | 0.343E+00 |
| Bi -212 | A | 3.0294E-01 | 2.5220E-01 | 2.5304E-01 | 0.374E+00 |
| BI -214 | | 6.6827E-01 | 1.6755E-01 | 1.7335E-01 | 0.630E-01 |
| CO-60 | #A | -4.3425E-02 | 1.6530E-01 | 1.6532E-01 | 0.339E-01 |
| CS-137 | | 9.2101E-02 | 5.6928E-02 | 5.7264E-02 | 0.418E-01 |
| EU-152 | A | 3.5117E-02 | 4.4743E-02 | 4.4842E-02 | 0.131E+00 |
| EU-154 | #A | 7.1506E-02 | 4.5859E-02 | 4.6257E-02 | 0.844E-01 |
| K-40 | | 1.6719E+01 | 1.7061E+00 | 2.0649E+00 | 0.199E+00 |
| Pa-234 | | 2.4764E-01 | 1.8362E-01 | 1.8442E-01 | 0.181E+00 |
| Pb-210 | #C | 0.0000E+00 | 5.3398E+00 | 5.3398E+00 | 0.000E+00 |
| Pb-212 | | 4.1028E-01 | 1.1683E-01 | 1.2093E-01 | 0.817E-01 |
| PB-214 | | 7.1217E-01 | 1.7653E-01 | 1.8379E-01 | 0.747E-01 |
| RA-226 | | 9.5805E-01 | 1.0753E+00 | 1.0777E+00 | 0.856E+00 |
| Th-230 | #A | -1.1170E+01 | 6.2270E+01 | 6.2299E+01 | 0.148E+02 |
| Th-234 | A | 3.1276E-01 | 2.0074E+00 | 2.0076E+00 | 0.173E+01 |
| TI -208 | | 2.6342E-01 | 7.3395E-02 | 7.5441E-02 | 0.284E-01 |
| U-235 | A | 2.7374E-02 | 1.0213E-01 | 1.0216E-01 | 0.662E-01 |

- # - All peaks for activity calculation had bad shape.
- * - Activity omitted from total
- & - Activity omitted from total and all peaks had bad shape.
- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Halflife limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 1.911E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 20:36:32
New World Technology Spectrum name: 2S000201.An1

Sample description
Parcel D1 06-PD1PI-0001-003 334g
11/04/10 13:30

Acquisition information
Start time: 29-Nov-2010 19:04:14
Live time: 5400
Real time: 5407

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 C | 1.6786E-01 | 1.6409E-01 | 1.6450E-01 | 0.151E+00 |
| AM-241 #A | 4.6827E-02 | 3.7258E-01 | 3.7261E-01 | 0.266E+00 |
| Bi-212 | 5.1309E-01 | 2.7098E-01 | 2.7322E-01 | 0.190E+00 |
| BI-214 | 1.0345E+00 | 1.4887E-01 | 1.6401E-01 | 0.559E-01 |
| CO-60 #A | -5.1548E-02 | 9.1847E-01 | 9.1848E-01 | 0.268E-01 |
| CS-137 | 6.2830E-02 | 4.3084E-02 | 4.3291E-02 | 0.340E-01 |
| EU-152 C | 1.4534E-01 | 8.4772E-02 | 8.5663E-02 | 0.971E-01 |
| EU-154 #C | 1.9074E-01 | 1.1267E-01 | 1.1383E-01 | 0.719E-01 |
| K-40 | 2.3541E+01 | 1.4549E+00 | 2.1907E+00 | 0.192E+00 |
| Pa-234 C | 1.1349E-01 | 1.0671E-01 | 1.0700E-01 | 0.103E+00 |
| Pb-210 #C | 0.0000E+00 | 7.9036E+00 | 7.9036E+00 | 0.000E+00 |
| Pb-212 | 2.3436E-01 | 7.6916E-02 | 7.8959E-02 | 0.601E-01 |
| PB-214 | 9.3443E-01 | 1.5675E-01 | 1.7052E-01 | 0.683E-01 |
| RA-226 #A | -1.3472E-02 | 9.7428E-01 | 9.7429E-01 | 0.750E+00 |
| Th-230 #A | -1.1826E+01 | 7.2882E+01 | 7.2910E+01 | 0.136E+02 |
| Th-234 #A | -9.1457E-02 | 1.8466E+00 | 1.8466E+00 | 0.124E+01 |
| TI-208 | 1.5633E-01 | 5.6512E-02 | 5.7453E-02 | 0.279E-01 |
| U-235 | 7.3690E-02 | 8.0585E-02 | 8.0778E-02 | 0.465E-01 |

- # - All peaks for activity calculation had bad shape.
- * - Activity omitted from total
- & - Activity omitted from total and all peaks had bad shape.
- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.648E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 20:37:15
New World Technology Spectrum name: 3S000191.An1

Sample description
Parcel D1 06-PD1PI-0001-004 309g
11/04/10 13:40

Acquisition information
Start time: 29-Nov-2010 19:04:37
Live time: 5400
Real time: 5405

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|------------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 8.6536E-01 | 2.8115E-01 | 2.8744E-01 | 0.113E+00 |
| AM-241 # | 7.4920E-02 | 8.7095E-02 | 8.7350E-02 | 0.625E-01 |
| Bi -212 #A | -2.7821E-02 | 1.4460E-01 | 1.4461E-01 | 0.242E+00 |
| BI -214 | 5.0651E-01 | 1.2234E-01 | 1.2689E-01 | 0.555E-01 |
| CO-60 #A | 6.3821E-03 | 3.5604E-02 | 3.5607E-02 | 0.292E-01 |
| CS-137 | 7.1910E-02 | 4.9694E-02 | 4.9928E-02 | 0.373E-01 |
| EU-152 A | -2.2238E-01 | 3.7691E-01 | 3.7738E-01 | 0.105E+00 |
| EU-154 C | 1.8368E-01 | 1.1465E-01 | 1.1570E-01 | 0.597E-01 |
| K-40 | 1.1674E+01 | 1.2693E+00 | 1.5069E+00 | 0.697E+00 |
| Pa-234 C | 2.7914E-01 | 1.9346E-01 | 1.9442E-01 | 0.111E+00 |
| Pb-210 # | 1.5539E+00 | 9.5028E-01 | 9.5803E-01 | 0.606E+00 |
| Pb-212 | 3.3061E-01 | 8.8979E-02 | 9.2471E-02 | 0.674E-01 |
| PB-214 | 5.1213E-01 | 1.3431E-01 | 1.3926E-01 | 0.692E-01 |
| RA-226 #A | -1.2038E-01 | 1.4672E+00 | 1.4673E+00 | 0.882E+00 |
| Th-230 #A | -1.1470E+00 | 1.4694E+01 | 1.4695E+01 | 0.662E+01 |
| Th-234 #A | -2.1787E+00 | 5.7385E+00 | 5.7423E+00 | 0.118E+01 |
| TI -208 #A | -4.4286E-01 | 3.1512E-01 | 3.1648E-01 | 0.796E-01 |
| U-235 | 1.2295E-01 | 8.0235E-02 | 8.0772E-02 | 0.530E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

& - Activity omitted from total and all peaks had bad shape.

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 1.564E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 21:30:08
New World Technology Spectrum name: 2S000202.An1

Sample description
Parcel D1 06-PD1PI-0001-005 346g
11/08/10 13:45

Acquisition information
Start time: 29-Nov-2010 20:41:16
Live time: 2700
Real time: 2704

```
***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Nucl ide   Time of Count   Uncertainty 2 Sigma   MDA
           Activity       Counting      Total          pCi /g
           pCi /g         pCi /g         pCi /g
-----
Ac-228 A    -4.4548E-02   4.7304E-02   4.7404E-02   0.208E+00
AM-241 A     4.1280E-02   3.6497E-01   3.6499E-01   0.308E+00
Bi-212 C     7.8129E-01   3.7068E-01   3.7448E-01   0.318E+00
Bi-214      5.0528E-01   1.4066E-01   1.4462E-01   0.775E-01
CO-60 #A    -3.7985E-02   1.7707E-01   1.7708E-01   0.375E-01
CS-137 A     3.9147E-02   5.9778E-02   5.9836E-02   0.490E-01
EU-152 #A   -4.7489E-02   1.6997E-01   1.7002E-01   0.101E+00
EU-154 C     1.0480E-01   5.9818E-02   6.0473E-02   0.683E-01
K-40        1.6415E+01   1.6354E+00   1.9947E+00   0.949E-01
Pa-234 #     1.6032E-01   1.4716E-01   1.4758E-01   0.100E+00
Pb-210 #C    0.0000E+00   2.8101E+00   2.8101E+00   0.000E+00
Pb-212      2.9935E-01   1.1054E-01   1.1287E-01   0.836E-01
PB-214      6.6479E-01   1.7292E-01   1.7939E-01   0.769E-01
RA-226 A     4.5385E-01   1.1162E+00   1.1167E+00   0.914E+00
Th-230 #A   -1.8527E+01   1.5682E+01   1.5682E+01   0.792E+01
Th-234 #A   -9.2857E-02   1.9469E+00   1.9469E+00   0.158E+01
TI-208      1.4898E-01   8.2512E-02   8.3100E-02   0.399E-01
U-235 A     5.7136E-02   9.2247E-02   9.2348E-02   0.644E-01
```

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

```
----- S U M M A R Y -----
Total Activity ( 32.4 to 2596.7 keV) 1.819E+01 pCi /g
```

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 23:04:12
New World Technology Spectrum name: 3S000192.An1

Sample description
Parcel D1 06-PD1PI-0001-006 347g
11/08/10 13:50

Acquisition information
Start time: 29-Nov-2010 21:32:42
Live time: 5400
Real time: 5405

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|------------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 7.2405E-01 | 1.7238E-01 | 1.7950E-01 | 0.629E-01 |
| AM-241 #A | -7.5685E-03 | 6.2303E-02 | 6.2303E-02 | 0.759E-02 |
| Bi -212 | 5.4902E-01 | 3.0585E-01 | 3.0812E-01 | 0.212E+00 |
| BI -214 # | 6.6885E-01 | 1.4557E-01 | 1.5222E-01 | 0.576E-01 |
| CO-60 #A | 2.6792E-02 | 4.2444E-02 | 4.2483E-02 | 0.291E-01 |
| CS-137 | 1.0580E-01 | 4.8246E-02 | 4.8767E-02 | 0.343E-01 |
| EU-152 A | -1.4876E-01 | 3.1599E-01 | 3.1624E-01 | 0.832E-01 |
| EU-154 C | 8.5032E-02 | 7.5038E-02 | 7.5383E-02 | 0.519E-01 |
| K-40 | 1.2672E+01 | 1.2298E+00 | 1.5131E+00 | 0.628E+00 |
| Pa-234 C | 2.3400E-01 | 1.7950E-01 | 1.8023E-01 | 0.475E-01 |
| Pb-210 | 7.6489E-01 | 7.2285E-01 | 7.2533E-01 | 0.509E+00 |
| Pb-212 | 2.5271E-01 | 7.7353E-02 | 7.9710E-02 | 0.597E-01 |
| PB-214 | 5.4129E-01 | 1.5200E-01 | 1.5690E-01 | 0.693E-01 |
| RA-226 A | 2.5139E-01 | 8.1847E-01 | 8.1869E-01 | 0.686E+00 |
| Th-230 #A | -6.5502E-01 | 8.0147E+00 | 8.0155E+00 | 0.487E+01 |
| Th-234 | 3.0257E+00 | 1.0654E+00 | 1.1042E+00 | 0.879E+00 |
| TI -208 #A | -3.6729E-01 | 3.0553E-01 | 3.0650E-01 | 0.732E-01 |
| U-235 C | 7.2367E-02 | 6.2055E-02 | 6.2296E-02 | 0.472E-01 |

- # - All peaks for activity calculation had bad shape.
- * - Activity omitted from total
- & - Activity omitted from total and all peaks had bad shape.
- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Halflife limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 1.930E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 22:19:24
New World Technology Spectrum name: 2S000203.An1

Sample description
Parcel D1 06-PD1PI-0001-007 360g
11/08/10 14:00

Acquisition information
Start time: 29-Nov-2010 21:32:22
Live time: 2700
Real time: 2704

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | C | 3.7616E-01 | 1.5828E-01 | 1.6041E-01 | 0.211E+00 |
| AM-241 | #A | -1.0203E-01 | 1.5326E+00 | 1.5327E+00 | 0.305E+00 |
| Bi -212 | | 5.2862E-01 | 2.6953E-01 | 2.7193E-01 | 0.129E+00 |
| BI -214 | | 2.9177E-01 | 1.3155E-01 | 1.3298E-01 | 0.747E-01 |
| CO-60 | #A | -3.4682E-02 | 1.3276E-01 | 1.3278E-01 | 0.346E-01 |
| CS-137 | | 8.1009E-02 | 6.0563E-02 | 6.0807E-02 | 0.461E-01 |
| EU-152 | C | 2.0920E-01 | 1.0663E-01 | 1.0809E-01 | 0.125E+00 |
| EU-154 | C | 9.6691E-02 | 7.5247E-02 | 7.5691E-02 | 0.731E-01 |
| K-40 | | 1.9993E+01 | 1.8085E+00 | 2.2815E+00 | 0.189E+00 |
| Pa-234 | C | 1.9562E-01 | 1.0558E-01 | 1.0644E-01 | 0.116E+00 |
| Pb-210 | #C | 0.0000E+00 | 5.0707E+00 | 5.0707E+00 | 0.000E+00 |
| Pb-212 | | 2.5072E-01 | 9.8187E-02 | 1.0003E-01 | 0.749E-01 |
| PB-214 | | 4.9003E-01 | 1.7272E-01 | 1.7627E-01 | 0.813E-01 |
| RA-226 | A | 3.5656E-01 | 1.1908E+00 | 1.1911E+00 | 0.979E+00 |
| Th-230 | #A | 9.4127E+00 | 2.3923E+01 | 2.3976E+01 | 0.172E+02 |
| Th-234 | A | 6.5336E-01 | 2.0564E+00 | 2.0573E+00 | 0.151E+01 |
| TI -208 | | 2.0087E-01 | 6.5871E-02 | 6.7201E-02 | 0.298E-01 |
| U-235 | A | 5.4136E-02 | 6.4930E-02 | 6.5059E-02 | 0.593E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

& - Activity omitted from total and all peaks had bad shape.

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.184E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 29-NOV-2010 23:07:11
New World Technology Spectrum name: 2S000204.An1

Sample description
Parcel D1 06-PD1PI-0001-008 363g
11/08/10 14:05

Acquisition information
Start time: 29-Nov-2010 22:20:48
Live time: 2700
Real time: 2704

```
***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Nucl ide   Time of Count   Uncertainty 2 Sigma   MDA
           Activity       Counting      Total          pCi /g
           pCi /g         pCi /g         pCi /g
-----
Ac-228 C    4.2779E-01    1.4982E-01    1.5270E-01    0.199E+00
AM-241 #A   -1.7115E-01    3.9579E+00    3.9579E+00    0.154E+00
Bi-212      7.1731E-01    3.2623E-01    3.2987E-01    0.207E+00
BI-214      4.4794E-01    1.4095E-01    1.4407E-01    0.864E-01
CO-60 #A   -3.6206E-02    2.2934E-01    2.2935E-01    0.387E-01
CS-137      8.4620E-02    6.0744E-02    6.1009E-02    0.460E-01
EU-152 A    8.0263E-02    9.3165E-02    9.3413E-02    0.121E+00
EU-154 A    4.9252E-02    5.0931E-02    5.1101E-02    0.786E-01
K-40        1.0197E+01    2.1426E+00    2.2570E+00    0.143E+01
Pa-234      3.7200E-01    2.8181E-01    2.8298E-01    0.177E+00
Pb-210 #C   0.0000E+00    1.8592E+00    1.8592E+00    0.000E+00
Pb-212      3.1189E-01    1.0483E-01    1.0748E-01    0.780E-01
PB-214      5.7519E-01    1.5445E-01    1.5988E-01    0.715E-01
RA-226 #A   -3.6131E-02    1.5013E+00    1.5013E+00    0.991E+00
Th-230 #A   -1.7243E+00    2.6950E+01    2.6952E+01    0.171E+02
Th-234      1.8092E+00    2.1038E+00    2.1109E+00    0.149E+01
TI-208      1.4218E-01    6.5154E-02    6.5831E-02    0.335E-01
U-235       1.4091E-01    1.0876E-01    1.0928E-01    0.555E-01
```

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

```
----- S U M M A R Y -----
Total Activity ( 32.4 to 2596.7 keV) 1.299E+01 pCi /g
```

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 09:16:29
New World Technology Spectrum name: 3S000193.An1

Sample description
Parcel D1 06-PD1PI-0001-009 339g
11/08/10 14:15

Acquisition information
Start time: 30-Nov-2010 07:44:32
Live time: 5400
Real time: 5405

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | # | 7.3637E-01 | 2.4095E-01 | 2.4627E-01 | 0.101E+00 |
| AM-241 | A | 6.7973E-02 | 8.7654E-02 | 8.7863E-02 | 0.706E-01 |
| Bi -212 | | 5.4954E-01 | 3.0477E-01 | 3.0705E-01 | 0.219E+00 |
| BI -214 | | 6.6423E-01 | 1.0516E-01 | 1.1406E-01 | 0.508E-01 |
| CO-60 | # | 5.2979E-02 | 6.4916E-02 | 6.5015E-02 | 0.344E-01 |
| CS-137 | | 7.7480E-02 | 5.0744E-02 | 5.1010E-02 | 0.382E-01 |
| EU-152 | A | -1.6553E-01 | 1.8572E-01 | 1.8625E-01 | 0.994E-01 |
| EU-154 | C | 6.8675E-02 | 7.7360E-02 | 7.7578E-02 | 0.588E-01 |
| K-40 | | 1.3380E+01 | 1.2828E+00 | 1.5850E+00 | 0.641E+00 |
| Pa-234 | | 3.1744E-01 | 2.0802E-01 | 2.0917E-01 | 0.164E+00 |
| Pb-210 | | 1.2074E+00 | 8.3174E-01 | 8.3708E-01 | 0.558E+00 |
| Pb-212 | | 4.2211E-01 | 8.8790E-02 | 9.4427E-02 | 0.647E-01 |
| PB-214 | | 5.8986E-01 | 1.6043E-01 | 1.6593E-01 | 0.761E-01 |
| RA-226 | A | 7.1456E-01 | 9.6288E-01 | 9.6440E-01 | 0.792E+00 |
| Th-230 | #A | -1.4887E+00 | 1.0851E+01 | 1.0854E+01 | 0.488E+01 |
| Th-234 | A | 7.8266E-01 | 1.1367E+00 | 1.1391E+00 | 0.985E+00 |
| TI -208 | #A | -4.1803E-01 | 3.9569E-01 | 3.9665E-01 | 0.756E-01 |
| U-235 | C | 7.7026E-02 | 5.7976E-02 | 5.8268E-02 | 0.535E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

& - Activity omitted from total and all peaks had bad shape.

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 1.794E+01 pCi /g

Laboratory: New World Technology

TetraTech Hunter's Point Lab

Sample ID: 06-PD1PI-0005-001
 Sample Description: Parcel D1

 Detector: HPGe #2 50-TP42229A Spectrum ID: 2_20110202_017
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: PD1PI Matrix: S
 Sample Time: 1/17/11 10:30 Live Time: 5400 sec
 Acquisition Time: 2/2/11 20:06:29 Real Time: 5404 sec
 Analysis Time: 2/2/11 21:36 Dead Time: 0.07 %
 Analysis Quantity: 2.510E+02 g

Efficiency: HPGe #2 Tuna Can Soil Solid 83489-918
 Efficiency Cal Date: 1/19/11 21:26
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | | 5.481E-01 | 20.71 | 1.135E-01 | 1.197E-01 | 3.134E-02 |
| AM-241 | #AB | -3.546E-02 | 668.20 | 2.370E-01 | 2.370E-01 | 1.935E-01 |
| Bi-212 | | 4.566E-01 | 41.52 | 1.895E-01 | 1.921E-01 | 1.128E-01 |
| BI-214 | | 4.588E-01 | 18.51 | 8.491E-02 | 9.027E-02 | 3.212E-02 |
| CO-60 | #AB | 0.000E+00 | 2000.00 | 3.444E-03 | 3.444E-03 | 4.314E-02 |
| CS-137 | | 2.599E-01 | 16.34 | 4.246E-02 | 4.594E-02 | 1.231E-02 |
| EU-152 | | 5.567E-02 | 95.05 | 5.292E-02 | 5.313E-02 | 4.033E-02 |
| EU-154 | #AB | -1.509E-04 | 52180.00 | 7.872E-02 | 7.872E-02 | 6.483E-02 |
| K-40 | | 1.651E+01 | 6.56 | 1.083E+00 | 1.585E+00 | 2.051E-01 |
| Pa-234 | #AB | 8.497E-03 | 909.60 | 7.729E-02 | 7.729E-02 | 6.322E-02 |
| Pb-210 | # | 0.000E+00 | 149.20 | 4.957E+00 | 4.968E+00 | 0.000E+00 |
| Pb-212 | | 5.728E-01 | 14.25 | 8.159E-02 | 9.259E-02 | 3.823E-02 |
| Pb-214 | | 4.731E-01 | 16.93 | 8.009E-02 | 8.705E-02 | 3.496E-02 |
| RA-226 | AB | 3.453E-01 | 140.70 | 4.858E-01 | 4.865E-01 | 3.838E-01 |
| Th-230 | #AB | -4.369E+00 | 349.50 | 1.527E+01 | 1.529E+01 | 1.240E+01 |
| Th-234 | # | 2.358E+00 | 38.14 | 8.992E-01 | 9.273E-01 | 6.361E-01 |
| Tl-208 | | 2.243E-01 | 17.95 | 4.026E-02 | 4.293E-02 | 1.332E-02 |
| U-235 | | 6.210E-02 | 65.09 | 4.042E-02 | 4.069E-02 | 2.458E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 2.233E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
 Review Date: 2/3/11 07:44

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 13:03:17
New World Technology Spectrum name: 3S000195.An1

Sample description
Parcel D1 06-PD1PI-0003-002 373g
11/10/10 11:00

Acquisition information
Start time: 30-Nov-2010 11:38:38
Live time: 2700
Real time: 2703

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | # | 5.7183E-01 | 2.6200E-01 | 2.6496E-01 | 0.108E+00 |
| AM-241 | A | 1.8800E-02 | 1.0685E-01 | 1.0686E-01 | 0.875E-01 |
| Bi-212 | C | 3.4468E-01 | 3.2601E-01 | 3.2685E-01 | 0.267E+00 |
| BI-214 | # | 9.1865E-01 | 1.8985E-01 | 1.9944E-01 | 0.693E-01 |
| CO-60 | #A | 9.5771E-03 | 2.7619E-02 | 2.7626E-02 | 0.317E-01 |
| CS-137 | A | 2.9757E-02 | 5.4145E-02 | 5.4182E-02 | 0.427E-01 |
| EU-152 | A | -1.6449E-01 | 1.3430E-01 | 1.3502E-01 | 0.138E+00 |
| EU-154 | C | 7.4890E-02 | 1.0285E-01 | 1.0305E-01 | 0.743E-01 |
| K-40 | | 1.2520E+01 | 1.8004E+00 | 2.0001E+00 | 0.910E+00 |
| Pa-234 | A | 4.8312E-02 | 7.3670E-02 | 7.3746E-02 | 0.769E-01 |
| Pb-210 | | 1.3845E+00 | 9.9102E-01 | 9.9692E-01 | 0.772E+00 |
| Pb-212 | | 3.8593E-01 | 1.1281E-01 | 1.1657E-01 | 0.812E-01 |
| PB-214 | | 5.8678E-01 | 1.5810E-01 | 1.6362E-01 | 0.774E-01 |
| RA-226 | | 1.1520E+00 | 1.1786E+00 | 1.1818E+00 | 0.950E+00 |
| Th-230 | A | 1.0602E-01 | 1.0154E+01 | 1.0154E+01 | 0.854E+01 |
| Th-234 | | 2.9579E+00 | 1.7417E+00 | 1.7647E+00 | 0.123E+01 |
| TI-208 | #A | -3.0025E-01 | 2.5248E-01 | 2.5326E-01 | 0.101E+00 |
| U-235 | A | 3.1330E-02 | 3.7736E-02 | 3.7810E-02 | 0.693E-01 |

- # - All peaks for activity calculation had bad shape.
- * - Activity omitted from total
- & - Activity omitted from total and all peaks had bad shape.
- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 1.933E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 13:42:55
New World Technology Spectrum name: 2S000210.An1

Sample description
Parcel D1 06-PD1PI-0003-003 347g
11/10/10 12:50

Acquisition information
Start time: 30-Nov-2010 12:55:51
Live time: 2700
Real time: 2704

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 4.7151E-01 | 1.9112E-01 | 1.9388E-01 | 0.207E+00 |
| AM-241 #A | -5.3837E-02 | 4.5921E-01 | 4.5924E-01 | 0.223E+00 |
| Bi -212 | 4.5135E-01 | 3.7129E-01 | 3.7256E-01 | 0.266E+00 |
| BI -214 | 6.4749E-01 | 1.6042E-01 | 1.6610E-01 | 0.609E-01 |
| CO-60 #A | -4.6208E-02 | 3.7974E-01 | 3.7975E-01 | 0.355E-01 |
| CS-137 | 8.5249E-02 | 5.6058E-02 | 5.6350E-02 | 0.417E-01 |
| EU-152 A | 6.5960E-02 | 7.7556E-02 | 7.7757E-02 | 0.126E+00 |
| EU-154 A | 6.2806E-02 | 7.6722E-02 | 7.6906E-02 | 0.811E-01 |
| K-40 | 1.5312E+01 | 1.5772E+00 | 1.9033E+00 | 0.946E-01 |
| Pa-234 | 5.0165E-01 | 2.8884E-01 | 2.9091E-01 | 0.123E+00 |
| Pb-210 #C | 0.0000E+00 | 2.3580E+00 | 2.3580E+00 | 0.000E+00 |
| Pb-212 | 3.6077E-01 | 1.1940E-01 | 1.2252E-01 | 0.780E-01 |
| PB-214 | 4.5265E-01 | 1.3030E-01 | 1.3430E-01 | 0.769E-01 |
| RA-226 #A | -3.5637E-02 | 1.5420E+00 | 1.5420E+00 | 0.103E+01 |
| Th-230 #A | 3.7320E+00 | 2.3353E+01 | 2.3361E+01 | 0.176E+02 |
| Th-234 #A | -3.5212E-01 | 2.3694E+00 | 2.3697E+00 | 0.145E+01 |
| TI -208 | 2.3429E-01 | 6.4260E-02 | 6.6107E-02 | 0.307E-01 |
| U-235 | 8.4062E-02 | 8.3116E-02 | 8.3359E-02 | 0.591E-01 |

- # - All peaks for activity calculation had bad shape.
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- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Halflife limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 1.860E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 16:57:28
New World Technology Spectrum name: 3S000196.An1

Sample description
Parcel D1 06-PD1PI-0003-004 353g
11/10/10 13:30

Acquisition information
Start time: 30-Nov-2010 15:19:26
Live time: 5400
Real time: 5405

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | | 8.5357E-01 | 2.1086E-01 | 2.1895E-01 | 0.797E-01 |
| AM-241 | A | 1.3586E-02 | 8.8980E-02 | 8.8988E-02 | 0.731E-01 |
| Bi-212 | | 3.8992E-01 | 3.1361E-01 | 3.1473E-01 | 0.237E+00 |
| BI-214 | | 5.4933E-01 | 1.1627E-01 | 1.2188E-01 | 0.510E-01 |
| CO-60 | #A | 2.1731E-02 | 1.8058E-02 | 1.8118E-02 | 0.292E-01 |
| CS-137 | | 1.1827E-01 | 4.1933E-02 | 4.2680E-02 | 0.272E-01 |
| EU-152 | A | -2.3122E-01 | 3.7090E-01 | 3.7142E-01 | 0.825E-01 |
| EU-154 | C | 1.4395E-01 | 9.8457E-02 | 9.9209E-02 | 0.503E-01 |
| K-40 | | 1.0990E+01 | 1.1714E+00 | 1.3988E+00 | 0.622E+00 |
| Pa-234 | | 4.9731E-01 | 2.8312E-01 | 2.8519E-01 | 0.170E+00 |
| Pb-210 | | 1.4455E+00 | 7.0950E-01 | 7.1846E-01 | 0.553E+00 |
| Pb-212 | | 3.5880E-01 | 8.3861E-02 | 8.8199E-02 | 0.622E-01 |
| PB-214 | | 5.0954E-01 | 9.8201E-02 | 1.0480E-01 | 0.598E-01 |
| RA-226 | | 9.6136E-01 | 8.5934E-01 | 8.6241E-01 | 0.699E+00 |
| Th-230 | #A | -4.7146E+00 | 5.3908E+00 | 5.3908E+00 | 0.167E+01 |
| Th-234 | #A | -1.6466E+00 | 3.8345E+00 | 3.8378E+00 | 0.103E+01 |
| TI-208 | #A | -3.2339E-01 | 2.0896E-01 | 2.1005E-01 | 0.698E-01 |
| U-235 | C | 5.7109E-02 | 7.9749E-02 | 7.9866E-02 | 0.487E-01 |

- All peaks for activity calculation had bad shape.
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< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 1.667E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 21:52:02
New World Technology Spectrum name: 3S000198.An1

Sample description
Parcel D1 06-PD1PI-0004-003 304g
11/12/10 09:00

Acquisition information
Start time: 30-Nov-2010 20:18:42
Live time: 5400
Real time: 5405

```
***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Nucl ide      Time of Count      Uncertainty 2 Sigma      MDA
              Activity          Counting      Total          pCi /g
              pCi /g            pCi /g        pCi /g
-----
Ac-228        9.0881E-01      3.0923E-01      3.1554E-01      0.129E+00
AM-241 A      3.4331E-02      8.4603E-02      8.4658E-02      0.689E-01
Bi-212 A      2.2016E-01      3.1573E-01      3.1608E-01      0.249E+00
BI-214        5.9985E-01      1.3951E-01      1.4510E-01      0.598E-01
CO-60 #A      -4.3600E-03      4.7060E-03      4.7152E-03      0.233E-01
CS-137        2.2332E-01      5.3986E-02      5.6034E-02      0.308E-01
EU-152 A      -3.4936E-01      9.6858E-01      9.6904E-01      0.110E+00
EU-154 A      5.8156E-02      7.9203E-02      7.9356E-02      0.662E-01
K-40          1.3518E+01      1.3716E+00      1.6631E+00      0.718E+00
Pa-234 #C      2.6215E-01      2.0691E-01      2.0770E-01      0.148E+00
Pb-210        2.3282E+00      9.6836E-01      9.8534E-01      0.631E+00
Pb-212        4.7762E-01      9.6205E-02      1.0285E-01      0.693E-01
PB-214        5.6276E-01      1.1267E-01      1.1970E-01      0.694E-01
RA-226        1.4270E+00      1.0111E+00      1.0168E+00      0.814E+00
Th-230 #A      -2.9111E+00      2.7719E+01      2.7724E+01      0.718E+01
Th-234 #       4.7390E+00      1.7196E+00      1.7788E+00      0.108E+01
TI-208 A      -4.1623E-01      2.5214E-01      2.5364E-01      0.830E-01
U-235 A       2.4952E-02      4.3083E-02      4.3125E-02      0.606E-01
```

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

```
----- S U M M A R Y -----
Total Activity ( 43.6 to 2779.2 keV) 2.478E+01 pCi /g
```

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 00:44:05
New World Technology Spectrum name: 2S000206.An1

Sample description
Parcel D1 06-PD1PI-0002-002 354g
11/09/10 11:30

Acquisition information
Start time: 29-Nov-2010 23:57:54
Live time: 2700
Real time: 2704

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | C | 4.3097E-01 | 2.3612E-01 | 2.3799E-01 | 0.198E+00 |
| AM-241 | #A | 2.7982E-01 | 5.3353E-01 | 5.3411E-01 | 0.355E+00 |
| Bi-212 | # | 8.7664E-01 | 4.6965E-01 | 4.7343E-01 | 0.212E+00 |
| BI-214 | | 6.0949E-01 | 1.4734E-01 | 1.5282E-01 | 0.728E-01 |
| CO-60 | #A | -4.7150E-02 | 3.7358E-01 | 3.7359E-01 | 0.332E-01 |
| CS-137 | | 9.8780E-02 | 5.9425E-02 | 5.9795E-02 | 0.435E-01 |
| EU-152 | C | 1.8115E-01 | 9.3138E-02 | 9.4395E-02 | 0.112E+00 |
| EU-154 | A | 6.3597E-02 | 7.1335E-02 | 7.1538E-02 | 0.950E-01 |
| K-40 | | 1.7701E+01 | 1.7232E+00 | 2.1180E+00 | 0.195E+00 |
| Pa-234 | #C | 2.8009E-01 | 1.7493E-01 | 1.7600E-01 | 0.167E+00 |
| Pb-210 | #C | 0.0000E+00 | 2.5555E+00 | 2.5555E+00 | 0.000E+00 |
| Pb-212 | | 3.1866E-01 | 1.1467E-01 | 1.1721E-01 | 0.865E-01 |
| PB-214 | | 5.0618E-01 | 1.3771E-01 | 1.4243E-01 | 0.860E-01 |
| RA-226 | A | 2.8559E-01 | 1.1804E+00 | 1.1806E+00 | 0.974E+00 |
| Th-230 | #A | -1.5913E+01 | 9.6781E+01 | 9.6819E+01 | 0.975E+01 |
| Th-234 | #A | -9.9919E-01 | 4.7453E+00 | 4.7463E+00 | 0.168E+01 |
| TI-208 | | 2.8253E-01 | 1.0294E-01 | 1.0463E-01 | 0.441E-01 |
| U-235 | A | 3.7186E-02 | 6.4622E-02 | 6.4683E-02 | 0.640E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

& - Activity omitted from total and all peaks had bad shape.

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.039E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 08:10:13
New World Technology Spectrum name: 2S000207.An1

Sample description
Parcel D1 06-PD1PI-0002-003 349g
11/09/10 13:30

Acquisition information
Start time: 30-Nov-2010 06:36:49
Live time: 5400
Real time: 5408

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|----------|----|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | C | 2.2106E-01 | 1.2442E-01 | 1.2535E-01 | 0.151E+00 |
| AM-241 | #A | -1.6806E-01 | 2.3223E-01 | 2.3223E-01 | 0.754E-01 |
| Bi-212 | | 4.6450E-01 | 2.9497E-01 | 2.9666E-01 | 0.219E+00 |
| BI-214 | | 6.9034E-01 | 1.0872E-01 | 1.1802E-01 | 0.575E-01 |
| CO-60 | A | -8.6614E-03 | 3.6560E-02 | 3.6565E-02 | 0.265E-01 |
| CS-137 | | 1.2751E-01 | 4.7518E-02 | 4.8285E-02 | 0.341E-01 |
| EU-152 | A | 7.7123E-02 | 6.9469E-02 | 6.9776E-02 | 0.792E-01 |
| EU-154 | A | 3.5386E-02 | 4.2199E-02 | 4.2305E-02 | 0.686E-01 |
| K-40 | | 1.8960E+01 | 1.2375E+00 | 1.8087E+00 | 0.470E-01 |
| Pa-234 | | 2.8498E-01 | 1.7560E-01 | 1.7670E-01 | 0.145E+00 |
| Pb-210 | #C | 0.0000E+00 | 7.4267E+00 | 7.4267E+00 | 0.000E+00 |
| Pb-212 | | 3.1904E-01 | 8.0441E-02 | 8.4029E-02 | 0.606E-01 |
| PB-214 | | 5.7236E-01 | 1.2415E-01 | 1.3078E-01 | 0.687E-01 |
| RA-226 | A | 4.2844E-01 | 8.6852E-01 | 8.6912E-01 | 0.712E+00 |
| Th-230 | #A | -5.3803E+00 | 3.7574E+01 | 3.7585E+01 | 0.146E+02 |
| Th-234 | #A | -4.3763E-02 | 1.7542E+00 | 1.7542E+00 | 0.122E+01 |
| TI-208 | | 1.3334E-01 | 4.9057E-02 | 4.9846E-02 | 0.340E-01 |
| U-235 | | 5.3721E-02 | 5.3328E-02 | 5.3483E-02 | 0.424E-01 |

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.161E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 12:28:57
New World Technology Spectrum name: 2S000209.An1

Sample description
Parcel D1 06-PD1PI-0002-004 326g
11/09/10 14:30

Acquisition information
Start time: 30-Nov-2010 11:37:38
Live time: 2700
Real time: 2704

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Acti vi ty pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|---------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 3.5676E-01 | 2.6062E-01 | 2.6178E-01 | 0.217E+00 |
| AM-241 #A | -3.1530E-02 | 6.5220E-01 | 6.5221E-01 | 0.387E+00 |
| Bi -212 | 5.8519E-01 | 3.6255E-01 | 3.6474E-01 | 0.237E+00 |
| BI -214 | 7.3192E-01 | 1.9447E-01 | 2.0047E-01 | 0.769E-01 |
| CO-60 #A | -4.0315E-03 | 5.8223E-02 | 5.8223E-02 | 0.430E-01 |
| CS-137 | 2.8085E-01 | 6.8664E-02 | 7.1211E-02 | 0.332E-01 |
| EU-152 A | 1.0004E-01 | 9.1311E-02 | 9.1704E-02 | 0.147E+00 |
| EU-154 A | 3.3326E-02 | 5.3672E-02 | 5.3746E-02 | 0.106E+00 |
| K-40 | 1.9407E+01 | 1.8943E+00 | 2.3263E+00 | 0.227E+00 |
| Pa-234 # | 2.3417E-01 | 1.8614E-01 | 1.8684E-01 | 0.118E+00 |
| Pb-210 #C | 0.0000E+00 | 2.4548E+00 | 2.4548E+00 | 0.000E+00 |
| Pb-212 | 4.9802E-01 | 1.3337E-01 | 1.3866E-01 | 0.878E-01 |
| PB-214 | 5.9737E-01 | 1.4253E-01 | 1.4885E-01 | 0.734E-01 |
| RA-226 | 1.2066E+00 | 1.3930E+00 | 1.3960E+00 | 0.111E+01 |
| Th-230 #A | -1.2910E+01 | 9.7275E+01 | 9.7299E+01 | 0.176E+02 |
| Th-234 | 2.4689E+00 | 2.0896E+00 | 2.1030E+00 | 0.172E+01 |
| TI -208 | 2.3814E-01 | 7.4204E-02 | 7.5862E-02 | 0.305E-01 |
| U-235 C | 1.2409E-01 | 1.1251E-01 | 1.1290E-01 | 0.754E-01 |

- # - All peaks for activity calculation had bad shape.
- * - Activity omitted from total
- & - Activity omitted from total and all peaks had bad shape.
- < - MDA value printed.
- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Halflife limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.540E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 11:36:50
New World Technology Spectrum name: 3S000194.An1

Sample description
Parcel D1 06-PD1PI-0002-005 340g
11/10/10 09:00

Acquisition information
Start time: 30-Nov-2010 10:05:23
Live time: 5400
Real time: 5406

```
***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****
Nucl ide   Time of Count   Uncertainty 2 Sigma   MDA
            Activity       Counting      Total          pCi /g
            pCi /g         pCi /g         pCi /g
-----
Ac-228      6.7780E-01   2.3346E-01   2.3811E-01   0.102E+00
AM-241  A    3.4692E-02   7.7586E-02   7.7648E-02   0.631E-01
Bi -212     3.4463E-01   3.1694E-01   3.1780E-01   0.243E+00
BI -214     6.6595E-01   1.3072E-01   1.3802E-01   0.569E-01
CO-60  #A    -2.9001E-03   3.8214E-02   3.8215E-02   0.275E-01
CS-137     1.9020E-01   4.9314E-02   5.0944E-02   0.295E-01
EU-152  #A    -3.3022E-01   1.1137E+00   1.1140E+00   0.891E-01
EU-154  C     7.4815E-02   5.4838E-02   5.5203E-02   0.443E-01
K-40       1.2433E+01   1.1859E+00   1.4679E+00   0.614E+00
Pa-234  C     1.7552E-01   1.6082E-01   1.6128E-01   0.145E+00
Pb-210     1.2089E+00   8.5861E-01   8.6380E-01   0.577E+00
Pb-212     3.7236E-01   8.4830E-02   8.9442E-02   0.625E-01
PB-214     6.0552E-01   1.5931E-01   1.6514E-01   0.752E-01
RA-226     8.2207E-01   9.5756E-01   9.5957E-01   0.784E+00
Th-230  #A     2.8780E+00   8.0698E+00   8.0846E+00   0.573E+01
Th-234  #     3.1444E+00   1.4156E+00   1.4474E+00   0.960E+00
TI -208  A    -3.9687E-01   2.3909E-01   2.4053E-01   0.730E-01
U-235  C     1.2576E-01   9.8366E-02   9.8824E-02   0.528E-01
```

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
& - Activity omitted from total and all peaks had bad shape.
< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

```
----- S U M M A R Y -----
Total Activity ( 43.6 to 2779.2 keV) 1.964E+01 pCi /g
```

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 11:24:40
New World Technology Spectrum name: 2S000208.An1

Sample description
Parcel D1 06-PD1PI-0003-001 345g
11/10/10 10:00

Acquisition information
Start time: 30-Nov-2010 09:50:36
Live time: 5400
Real time: 5408

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 3.4176E-01 | 1.5328E-01 | 1.5509E-01 | 0.148E+00 |
| AM-241 #A | 2.4556E-01 | 3.6441E-01 | 3.6507E-01 | 0.251E+00 |
| Bi-212 | 3.1324E-01 | 3.2285E-01 | 3.2356E-01 | 0.252E+00 |
| BI-214 | 7.4878E-01 | 1.4781E-01 | 1.5597E-01 | 0.618E-01 |
| CO-60 #A | -1.8875E-02 | 2.8067E-02 | 2.8096E-02 | 0.238E-01 |
| CS-137 | 1.3095E-01 | 4.7565E-02 | 4.8373E-02 | 0.339E-01 |
| EU-152 C | 8.7054E-02 | 6.5872E-02 | 6.6285E-02 | 0.759E-01 |
| EU-154 A | 3.5569E-02 | 4.6923E-02 | 4.7020E-02 | 0.604E-01 |
| K-40 | 2.0703E+01 | 1.4381E+00 | 2.0354E+00 | 0.287E+00 |
| Pa-234 A | 1.0258E-01 | 1.0185E-01 | 1.0209E-01 | 0.200E+00 |
| Pb-210 #C | 0.0000E+00 | 7.5152E+00 | 7.5152E+00 | 0.000E+00 |
| Pb-212 | 3.8470E-01 | 8.1991E-02 | 8.7065E-02 | 0.599E-01 |
| PB-214 | 5.7137E-01 | 1.1918E-01 | 1.2605E-01 | 0.596E-01 |
| RA-226 A | 3.2043E-01 | 8.5022E-01 | 8.5057E-01 | 0.701E+00 |
| Th-230 #A | 6.5062E+00 | 2.2902E+01 | 2.2928E+01 | 0.153E+02 |
| Th-234 #A | -9.7475E-02 | 1.4557E+00 | 1.4557E+00 | 0.117E+01 |
| TI-208 | 2.1210E-01 | 5.5474E-02 | 5.7225E-02 | 0.264E-01 |
| U-235 C | 5.2212E-02 | 7.8201E-02 | 7.8300E-02 | 0.481E-01 |

- All peaks for activity calculation had bad shape.
* - Activity omitted from total
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< - MDA value printed.
A - Activity printed, but activity < MDA.
B - Activity < MDA and failed test.
C - Area < Critical level.
F - Failed fraction or key line test.
H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.309E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 16:19:07
New World Technology Spectrum name: 2S000211.An1

Sample description
Parcel D1 06-PD1PI-0003-005 325g
11/11/10 09:00

Acquisition information
Start time: 30-Nov-2010 14:37:43
Live time: 5400
Real time: 5408

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 5.6994E-01 | 1.5372E-01 | 1.5869E-01 | 0.168E+00 |
| AM-241 #A | 1.0160E-01 | 3.0952E-01 | 3.0965E-01 | 0.238E+00 |
| Bi -212 | 6.3058E-01 | 2.8239E-01 | 2.8563E-01 | 0.190E+00 |
| BI -214 | 7.6087E-01 | 1.1161E-01 | 1.2254E-01 | 0.520E-01 |
| CO-60 A | -1.9966E-02 | 3.1463E-02 | 3.1492E-02 | 0.262E-01 |
| CS-137 | 2.0190E-01 | 5.4277E-02 | 5.5948E-02 | 0.359E-01 |
| EU-152 C | 1.9024E-01 | 1.0195E-01 | 1.0322E-01 | 0.949E-01 |
| EU-154 C | 8.1610E-02 | 7.5075E-02 | 7.5393E-02 | 0.592E-01 |
| K-40 | 1.8911E+01 | 1.3010E+00 | 1.8503E+00 | 0.111E+00 |
| Pa-234 #A | 3.7126E-02 | 6.7109E-02 | 6.7158E-02 | 0.726E-01 |
| Pb-210 #C | 0.0000E+00 | 3.8428E+00 | 3.8428E+00 | 0.000E+00 |
| Pb-212 | 4.9955E-01 | 8.9715E-02 | 9.7445E-02 | 0.633E-01 |
| PB-214 | 6.3742E-01 | 1.3954E-01 | 1.4686E-01 | 0.686E-01 |
| RA-226 | 1.0881E+00 | 9.2422E-01 | 9.2787E-01 | 0.740E+00 |
| Th-230 #A | -8.2610E+00 | 4.0026E+01 | 4.0051E+01 | 0.144E+02 |
| Th-234 #A | 4.1355E-01 | 1.7269E+00 | 1.7274E+00 | 0.128E+01 |
| TI -208 | 2.6862E-01 | 6.3789E-02 | 6.6224E-02 | 0.287E-01 |
| U-235 C | 8.1998E-02 | 7.9826E-02 | 8.0066E-02 | 0.504E-01 |

- # - All peaks for activity calculation had bad shape.
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- A - Activity printed, but activity < MDA.
- B - Activity < MDA and failed test.
- C - Area < Critical level.
- F - Failed fraction or key line test.
- H - Halflife limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.357E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 21:51:16
New World Technology Spectrum name: 2S000213.An1

Sample description
Parcel D1 06-PD1PI-0003-006 374g
11/11/10 09:30

Acquisition information
Start time: 30-Nov-2010 20:18:39
Live time: 5400
Real time: 5408

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 4.1080E-01 | 1.4099E-01 | 1.4382E-01 | 0.146E+00 |
| AM-241 #A | -6.7696E-02 | 7.1120E-01 | 7.1122E-01 | 0.240E+00 |
| Bi -212 | 4.2562E-01 | 2.3961E-01 | 2.4136E-01 | 0.170E+00 |
| BI -214 | 7.4171E-01 | 1.1469E-01 | 1.2485E-01 | 0.451E-01 |
| CO-60 #A | 0.0000E+00 | 3.4101E-02 | 3.4251E-02 | 0.268E-01 |
| CS-137 | 1.0851E-01 | 4.1037E-02 | 4.1680E-02 | 0.293E-01 |
| EU-152 C | 1.5300E-01 | 8.5405E-02 | 8.6384E-02 | 0.867E-01 |
| EU-154 C | 9.2523E-02 | 6.5105E-02 | 6.5575E-02 | 0.635E-01 |
| K-40 | 1.6249E+01 | 1.1670E+00 | 1.6248E+00 | 0.173E+00 |
| Pa-234 C | 1.6072E-01 | 1.5941E-01 | 1.5979E-01 | 0.111E+00 |
| Pb-210 #C | 0.0000E+00 | 7.5343E+00 | 7.5343E+00 | 0.000E+00 |
| Pb-212 | 4.8132E-01 | 8.0901E-02 | 8.8814E-02 | 0.563E-01 |
| PB-214 | 7.4225E-01 | 1.3066E-01 | 1.4112E-01 | 0.583E-01 |
| RA-226 | 9.9038E-01 | 8.2048E-01 | 8.2388E-01 | 0.656E+00 |
| Th-230 #A | -1.4094E+01 | 1.5586E+02 | 1.5588E+02 | 0.135E+02 |
| Th-234 A | 2.8586E-01 | 1.5859E+00 | 1.5861E+00 | 0.114E+01 |
| TI -208 | 2.3666E-01 | 5.7685E-02 | 5.9777E-02 | 0.250E-01 |
| U-235 A | 2.5165E-02 | 6.2800E-02 | 6.2829E-02 | 0.475E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

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< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.039E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 19:23:50
New World Technology Spectrum name: 2S000212.An1

Sample description
Parcel D1 06-PD1PI-0004-001 351g
11/11/10 10:00

Acquisition information
Start time: 30-Nov-2010 17:47:44
Live time: 5400
Real time: 5408

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|-----------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 4.4705E-01 | 1.6160E-01 | 1.6453E-01 | 0.164E+00 |
| AM-241 #A | -3.0944E-02 | 3.3392E-01 | 3.3393E-01 | 0.198E+00 |
| Bi -212 | 5.3888E-01 | 2.3780E-01 | 2.4062E-01 | 0.213E+00 |
| BI -214 | 8.1192E-01 | 1.3136E-01 | 1.4203E-01 | 0.492E-01 |
| CO-60 #A | -5.4293E-02 | 2.9654E-01 | 2.9656E-01 | 0.243E-01 |
| CS-137 | 1.5850E-01 | 4.7488E-02 | 4.8669E-02 | 0.322E-01 |
| EU-152 A | 7.2652E-02 | 4.4949E-02 | 4.5369E-02 | 0.936E-01 |
| EU-154 A | 6.2314E-02 | 6.2299E-02 | 6.2522E-02 | 0.666E-01 |
| K-40 | 1.7466E+01 | 1.2489E+00 | 1.7426E+00 | 0.169E+00 |
| Pa-234 | 2.8630E-01 | 2.1275E-01 | 2.1366E-01 | 0.119E+00 |
| Pb-210 #C | 0.0000E+00 | 7.9735E+00 | 7.9735E+00 | 0.000E+00 |
| Pb-212 | 5.8557E-01 | 8.9040E-02 | 9.9579E-02 | 0.606E-01 |
| PB-214 | 6.3374E-01 | 1.0253E-01 | 1.1218E-01 | 0.587E-01 |
| RA-226 A | 3.7639E-01 | 8.7227E-01 | 8.7273E-01 | 0.717E+00 |
| Th-230 #A | -2.1522E+00 | 2.1534E+01 | 2.1537E+01 | 0.131E+02 |
| Th-234 A | 2.1907E-01 | 1.3732E+00 | 1.3734E+00 | 0.119E+01 |
| TI -208 | 2.8048E-01 | 6.3241E-02 | 6.5913E-02 | 0.285E-01 |
| U-235 C | 8.1958E-02 | 7.8181E-02 | 7.8426E-02 | 0.479E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

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< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (32.4 to 2596.7 keV) 2.121E+01 pCi /g

Laboratory: New World Technology

ORTEC g v - i (3263) Npp32 G53W3.10 30-NOV-2010 19:28:51
New World Technology Spectrum name: 3S000197.An1

Sample description
Parcel D1 06-PD1PI-0004-002 308g
11/11/10 14:00

Acquisition information

Start time: 30-Nov-2010 17:47:47
Live time: 5400
Real time: 5406

***** S U M M A R Y O F N U C L I D E S I N S A M P L E *****

| Nucl ide | Time of Count Activity pCi /g | Uncertainty Counting pCi /g | 2 Sigma Total pCi /g | MDA pCi /g |
|------------|-------------------------------------|-----------------------------------|----------------------------|---------------|
| Ac-228 | 1.0006E+00 | 2.8083E-01 | 2.8921E-01 | 0.118E+00 |
| AM-241 A | 5.9772E-02 | 9.6555E-02 | 9.6702E-02 | 0.781E-01 |
| Bi -212 | 7.1447E-01 | 3.5356E-01 | 3.5689E-01 | 0.247E+00 |
| BI -214 | 8.6797E-01 | 1.2353E-01 | 1.3635E-01 | 0.564E-01 |
| CO-60 #A | -2.6984E-02 | 1.7129E-01 | 1.7130E-01 | 0.286E-01 |
| CS-137 | 1.4550E-01 | 5.1639E-02 | 5.2557E-02 | 0.282E-01 |
| EU-152 A | -1.2154E-01 | 1.7129E-01 | 1.7160E-01 | 0.102E+00 |
| EU-154 C | 9.0209E-02 | 1.1580E-01 | 1.1605E-01 | 0.594E-01 |
| K-40 | 1.4572E+01 | 1.3614E+00 | 1.6974E+00 | 0.689E+00 |
| Pa-234 A | 1.5836E-01 | 2.0160E-01 | 2.0189E-01 | 0.180E+00 |
| Pb-210 # | 2.6717E+00 | 1.1369E+00 | 1.1560E+00 | 0.673E+00 |
| Pb-212 | 6.7255E-01 | 1.0527E-01 | 1.1706E-01 | 0.721E-01 |
| PB-214 | 7.0273E-01 | 1.2104E-01 | 1.3115E-01 | 0.725E-01 |
| RA-226 | 1.4855E+00 | 1.0535E+00 | 1.0594E+00 | 0.848E+00 |
| Th-230 #A | -5.0282E+00 | 1.3250E+02 | 1.3250E+02 | 0.454E+01 |
| Th-234 | 3.7855E+00 | 1.2822E+00 | 1.3327E+00 | 0.105E+01 |
| TI -208 #A | -3.0096E-01 | 1.6008E-01 | 1.6132E-01 | 0.802E-01 |
| U-235 C | 8.5979E-02 | 1.0228E-01 | 1.0249E-01 | 0.609E-01 |

- All peaks for activity calculation had bad shape.

* - Activity omitted from total

& - Activity omitted from total and all peaks had bad shape.

< - MDA value printed.

A - Activity printed, but activity < MDA.

B - Activity < MDA and failed test.

C - Area < Critical level.

F - Failed fraction or key line test.

H - Half life limit exceeded

----- S U M M A R Y -----
Total Activity (43.6 to 2779.2 keV) 2.662E+01 pCi /g

Laboratory: New World Technology

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH749-001
 Sample Description: MH749 sediment sample

 Detector: HPGe #11 51-TP32744A Spectrum ID: 11_20120124_010
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: PD1-MH Matrix: S
 Sample Time: 1/19/2012 14:00 Live Time: 5400 sec
 Acquisition Time: 1/24/2012 14:39:31 Real Time: 5405 sec
 Analysis Time: 1/24/2012 16:09 Dead Time: 0.09 %
 Analysis Quantity: 3.490E+02 g

Efficiency: HPGe #11 Tuna Can Soil Solid 85625-918
 Efficiency Cal Date: 1/5/2012 11:14
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | | 2.826E-01 | 28.47 | 8.044E-02 | 8.266E-02 | 4.624E-02 |
| Am-241 | #AB | 1.911E-04 | 66350.00 | 1.268E-01 | 1.268E-01 | 1.044E-01 |
| Bi-212 | | 5.163E-01 | 29.72 | 1.535E-01 | 1.574E-01 | 5.216E-02 |
| Bi-214 | | 3.271E-01 | 15.42 | 5.044E-02 | 5.496E-02 | 1.352E-02 |
| Co-60 | #AB | -6.436E-03 | 331.70 | 2.135E-02 | 2.135E-02 | 1.707E-02 |
| Cs-137 | #AB | 9.394E-03 | 186.80 | 1.755E-02 | 1.756E-02 | 1.373E-02 |
| Eu-152 | #AB | 1.049E-03 | 4133.00 | 4.335E-02 | 4.335E-02 | 3.564E-02 |
| Eu-154 | #AB | -9.307E-03 | 618.80 | 5.759E-02 | 5.759E-02 | 4.661E-02 |
| K-40 | | 1.015E+01 | 6.85 | 6.954E-01 | 9.899E-01 | 1.463E-01 |
| Pa-234 | #AB | 3.791E-02 | 243.50 | 9.231E-02 | 9.234E-02 | 7.219E-02 |
| Pb-210 | #AB | 0.000E+00 | 2000.00 | 2.589E+00 | 2.589E+00 | 4.153E+00 |
| Pb-212 | | 3.828E-01 | 12.34 | 4.721E-02 | 5.534E-02 | 1.930E-02 |
| Pb-214 | | 3.354E-01 | 19.24 | 6.451E-02 | 6.847E-02 | 2.679E-02 |
| Ra-226 | | 2.749E-01 | 119.80 | 3.292E-01 | 3.299E-01 | 2.660E-01 |
| Th-230 | #AB | -5.313E+00 | 150.20 | 7.980E+00 | 7.993E+00 | 6.345E+00 |
| Th-234 | # | 4.515E-01 | 75.33 | 3.401E-01 | 3.425E-01 | 2.640E-01 |
| Tl-208 | | 1.275E-01 | 21.10 | 2.689E-02 | 2.820E-02 | 9.409E-03 |
| U-235 | AB | 1.450E-02 | 165.40 | 2.398E-02 | 2.400E-02 | 1.915E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 1.291E+01

Analyst: Andrew Alexander

Reviewer: Philip Smith
 Review Date: 1/26/2012 09:18

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH745-001-01
 Sample Description: Pipe Sediment, Gun Mole Pier, MH745

 Detector: HPGe #6 49-TN19510U Spectrum ID: 6_20110318_016
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: MH745 Matrix: S
 Sample Time: 3/8/11 12:45 Live Time: 2700 sec
 Acquisition Time: 3/18/11 22:54:02 Real Time: 2702 sec
 Analysis Time: 3/18/11 23:39 Dead Time: 0.06 %
 Analysis Quantity: 3.230E+02 g

Efficiency: HPGe #6 Tuna Can Soil Solid 83491-918
 Efficiency Cal Date: 3/8/11 12:39
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | # | 2.714E-01 | 66.02 | 1.792E-01 | 1.802E-01 | 1.236E-01 |
| Am-241 | #AB | 0.000E+00 | 2000.00 | 4.448E-02 | 4.448E-02 | 9.148E-02 |
| Bi-212 | #AB | 2.097E-01 | 142.20 | 2.982E-01 | 2.986E-01 | 2.233E-01 |
| Bi-214 | | 5.331E-01 | 19.71 | 1.050E-01 | 1.109E-01 | 2.199E-02 |
| Co-60 | #AB | -2.171E-02 | 258.40 | 5.608E-02 | 5.610E-02 | 4.420E-02 |
| Cs-137 | # | 4.419E-02 | 96.91 | 4.283E-02 | 4.293E-02 | 3.094E-02 |
| Eu-152 | #AB | 2.952E-02 | 329.90 | 9.738E-02 | 9.740E-02 | 7.791E-02 |
| Eu-154 | #AB | 4.040E-04 | 28340.00 | 1.145E-01 | 1.145E-01 | 9.427E-02 |
| K-40 | | 1.483E+01 | 10.01 | 1.484E+00 | 1.812E+00 | 1.967E-01 |
| Pa-234 | #AB | -2.260E-02 | 1027.00 | 2.320E-01 | 2.320E-01 | 1.884E-01 |
| Pb-210 | | 1.945E+00 | 72.46 | 1.410E+00 | 1.417E+00 | 8.476E-01 |
| Pb-212 | | 2.526E-01 | 35.15 | 8.876E-02 | 9.084E-02 | 6.614E-02 |
| Pb-214 | | 3.636E-01 | 33.77 | 1.228E-01 | 1.256E-01 | 5.976E-02 |
| Ra-226 | | 1.098E+00 | 73.25 | 8.042E-01 | 8.085E-01 | 6.084E-01 |
| Th-230 | #AB | 1.703E+00 | 435.20 | 7.413E+00 | 7.418E+00 | 6.025E+00 |
| Th-234 | # | 8.126E-01 | 86.09 | 6.995E-01 | 7.038E-01 | 5.065E-01 |
| Tl-208 | | 2.074E-01 | 28.77 | 5.966E-02 | 6.123E-02 | 2.883E-02 |
| U-235 | AB | 0.000E+00 | 0.00 | 4.517E-01 | 4.517E-01 | 5.431E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 2.230E+01

Analyst: Philip Smith

Reviewer: Philip Smith
 Review Date: 3/21/11 11:33

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH780-001-01
Sample Description: Manhole

Detector: HPGe #4 50-TP42236A Spectrum ID: 4_20110307_010
Contract: Shaw Sample Type: SAMPLE
Unit Number: MH780-001 Matrix: S
Sample Time: 2/25/11 10:05 Live Time: 2700 sec
Acquisition Time: 3/7/11 20:30:11 Real Time: 2702 sec
Analysis Time: 3/7/11 21:15 Dead Time: 0.08 %
Analysis Quantity: 3.510E+02 g

Efficiency: HPGe #4 Tuna Can Soil Solid 83490-918
Efficiency Cal Date: 1/19/11 20:43
Library: GenericAnalysis.lib
Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | # | 1.915E-01 | 56.24 | 1.077E-01 | 1.085E-01 | 6.996E-02 |
| Am-241 | #AB | 5.242E-02 | 290.80 | 1.524E-01 | 1.525E-01 | 1.224E-01 |
| Bi-212 | #AB | 7.079E-02 | 300.80 | 2.129E-01 | 2.130E-01 | 1.688E-01 |
| Bi-214 | | 2.712E-01 | 24.77 | 6.719E-02 | 6.959E-02 | 2.371E-02 |
| Co-60 | #AB | 3.818E-03 | 353.20 | 1.349E-02 | 1.349E-02 | 2.888E-02 |
| Cs-137 | # | 4.226E-02 | 74.48 | 3.148E-02 | 3.161E-02 | 2.225E-02 |
| Eu-152 | #AB | -5.952E-03 | 913.70 | 5.438E-02 | 5.438E-02 | 4.424E-02 |
| Eu-154 | #AB | -9.472E-03 | 1064.00 | 1.008E-01 | 1.008E-01 | 8.207E-02 |
| K-40 | # | 1.713E+01 | 7.72 | 1.322E+00 | 1.786E+00 | 3.313E-01 |
| Pa-234 | #AB | 0.000E+00 | 2000.00 | 2.163E-02 | 2.163E-02 | 2.502E-01 |
| Pb-210 | #AB | 1.374E+00 | 282.00 | 3.875E+00 | 3.877E+00 | 3.087E+00 |
| Pb-212 | | 3.562E-01 | 18.41 | 6.557E-02 | 7.100E-02 | 2.976E-02 |
| Pb-214 | | 2.548E-01 | 25.64 | 6.534E-02 | 6.787E-02 | 3.926E-02 |
| Ra-226 | | 4.152E-01 | 100.10 | 4.156E-01 | 4.168E-01 | 3.231E-01 |
| Th-230 | #AB | -3.474E+00 | 303.90 | 1.056E+01 | 1.057E+01 | 8.510E+00 |
| Th-234 | #AB | -2.953E-02 | 1402.00 | 4.141E-01 | 4.141E-01 | 3.396E-01 |
| Tl-208 | | 1.196E-01 | 28.96 | 3.462E-02 | 3.552E-02 | 1.243E-02 |
| U-235 | #AB | -3.675E-02 | 335.90 | 1.234E-01 | 1.235E-01 | 3.070E-02 |

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 2.028E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
Review Date: 3/8/11 08:41

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH775-001-01
 Sample Description: Pipe Sediment, Gun Mole Pier, MH775

 Detector: HPGe #5 50-TP42234A Spectrum ID: 5_20110318_015
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: MH775 Matrix: S
 Sample Time: 3/8/11 11:00 Live Time: 2700 sec
 Acquisition Time: 3/18/11 22:50:47 Real Time: 2703 sec
 Analysis Time: 3/18/11 23:36 Dead Time: 0.11 %
 Analysis Quantity: 3.510E+02 g

Efficiency: HPGe #5 Tuna Can Soil Solid 83491-918
 Efficiency Cal Date: 1/18/11 12:55
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | | 3.111E-01 | 37.15 | 1.156E-01 | 1.176E-01 | 6.444E-02 |
| Am-241 | #AB | 8.960E-03 | 1367.00 | 1.225E-01 | 1.225E-01 | 1.003E-01 |
| Bi-212 | #AB | 1.053E-01 | 173.50 | 1.828E-01 | 1.829E-01 | 1.385E-01 |
| Bi-214 | | 2.552E-01 | 30.34 | 7.744E-02 | 7.929E-02 | 3.428E-02 |
| Co-60 | #AB | -1.061E-02 | 322.20 | 3.418E-02 | 3.419E-02 | 2.711E-02 |
| Cs-137 | #AB | 1.912E-02 | 142.00 | 2.715E-02 | 2.718E-02 | 2.044E-02 |
| Eu-152 | #AB | -3.052E-03 | 1481.00 | 4.520E-02 | 4.520E-02 | 3.689E-02 |
| Eu-154 | #AB | -1.242E-02 | 788.00 | 9.783E-02 | 9.783E-02 | 7.932E-02 |
| K-40 | | 1.183E+01 | 8.62 | 1.019E+00 | 1.314E+00 | 5.115E-02 |
| Pa-234 | #AB | -3.739E-02 | 461.40 | 1.725E-01 | 1.725E-01 | 1.381E-01 |
| Pb-210 | #AB | 7.018E-03 | 36540.00 | 2.565E+00 | 2.565E+00 | 2.112E+00 |
| Pb-212 | | 3.151E-01 | 19.60 | 6.177E-02 | 6.630E-02 | 3.670E-02 |
| Pb-214 | | 3.250E-01 | 21.04 | 6.838E-02 | 7.228E-02 | 2.719E-02 |
| Ra-226 | # | 5.665E-01 | 78.92 | 4.471E-01 | 4.492E-01 | 3.407E-01 |
| Th-230 | #AB | -1.780E+00 | 483.90 | 8.612E+00 | 8.618E+00 | 6.987E+00 |
| Th-234 | # | 3.563E-01 | 109.70 | 3.908E-01 | 3.923E-01 | 3.016E-01 |
| Tl-208 | | 1.412E-01 | 25.06 | 3.538E-02 | 3.660E-02 | 1.025E-02 |
| U-235 | AB | -2.509E-02 | 308.90 | 7.751E-02 | 7.753E-02 | 3.085E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 1.424E+01

Analyst: Philip Smith

Reviewer: Philip Smith
 Review Date: 3/21/11 11:32

TetraTech Hunter's Point Lab

Sample ID: 06-PD1MH766-001-01
Sample Description: 06-D29-00-3A; GMP

Detector: HPGe #2 50-TP42229A Spectrum ID: 2_20110325_003
Contract: Shaw Sample Type: SAMPLE
Unit Number: MH766 Matrix: S
Sample Time: 3/17/2011 14:55 Live Time: 2700 sec
Acquisition Time: 3/25/2011 08:32:48 Real Time: 2703 sec
Analysis Time: 3/25/2011 09:18 Dead Time: 0.10 %
Analysis Quantity: 3.200E+02 g

Efficiency: HPGe #2 Tuna Can Soil Solid 83489-918
Efficiency Cal Date: 1/19/2011 21:26
Library: GenericAnalysis.lib
Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | | 1.617E-01 | 71.28 | 1.153E-01 | 1.158E-01 | 7.702E-02 |
| Am-241 | #AB | -3.298E-03 | 8129.00 | 2.681E-01 | 2.681E-01 | 2.206E-01 |
| Bi-212 | # | 2.035E-01 | 108.00 | 2.199E-01 | 2.203E-01 | 1.570E-01 |
| Bi-214 | # | 1.998E-01 | 36.92 | 7.375E-02 | 7.494E-02 | 4.741E-02 |
| Co-60 | #AB | 1.754E-03 | 1712.00 | 3.002E-02 | 3.002E-02 | 2.450E-02 |
| Cs-137 | # | 5.500E-02 | 62.79 | 3.453E-02 | 3.473E-02 | 2.284E-02 |
| Eu-152 | #AB | 4.535E-04 | 14960.00 | 6.783E-02 | 6.783E-02 | 5.583E-02 |
| Eu-154 | #AB | -1.930E-02 | 4000.00 | 7.718E-01 | 7.718E-01 | 1.118E-01 |
| K-40 | | 1.016E+01 | 10.45 | 1.063E+00 | 1.279E+00 | 1.858E-01 |
| Pa-234 | #AB | -1.874E-03 | 9084.00 | 1.703E-01 | 1.703E-01 | 1.400E-01 |
| Pb-210 | # | 0.000E+00 | 801.20 | 2.096E+00 | 2.096E+00 | 0.000E+00 |
| Pb-212 | | 3.506E-01 | 25.35 | 8.888E-02 | 9.283E-02 | 3.894E-02 |
| Pb-214 | # | 2.575E-01 | 27.85 | 7.171E-02 | 7.407E-02 | 3.859E-02 |
| Ra-226 | #AB | 4.175E-01 | 132.30 | 5.525E-01 | 5.534E-01 | 4.275E-01 |
| Th-230 | #AB | -3.761E+00 | 404.90 | 1.523E+01 | 1.524E+01 | 1.230E+01 |
| Th-234 | #AB | 1.549E-02 | 2763.00 | 4.280E-01 | 4.280E-01 | 3.515E-01 |
| Tl-208 | | 1.392E-01 | 26.61 | 3.703E-02 | 3.817E-02 | 1.456E-02 |
| U-235 | # | 3.107E-02 | 115.80 | 3.600E-02 | 3.607E-02 | 2.754E-02 |

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.200E+01

Analyst: Philip Smith

Reviewer: Philip Smith
Review Date: 3/28/2011 12:32

TetraTech Hunter's Point Lab

Sample ID: 06-PD1MH768-001-01
 Sample Description: 06-D29-00-5A; GMP

 Detector: HPGe #3 51-TP32733A Spectrum ID: 3_20110325_003
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: MH768 Matrix: S
 Sample Time: 3/17/2011 11:20 Live Time: 2700 sec
 Acquisition Time: 3/25/2011 08:34:02 Real Time: 2705 sec
 Analysis Time: 3/25/2011 09:19 Dead Time: 0.17 %
 Analysis Quantity: 3.620E+02 g

Efficiency: HPGe #3 Tuna Can Soil Solid 83490-918
 Efficiency Cal Date: 1/21/2011 13:54
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | # | 2.672E-01 | 40.41 | 1.080E-01 | 1.096E-01 | 6.152E-02 |
| Am-241 | #AB | -1.205E-03 | 9042.00 | 1.089E-01 | 1.089E-01 | 8.964E-02 |
| Bi-212 | #AB | 9.825E-02 | 198.80 | 1.953E-01 | 1.954E-01 | 1.507E-01 |
| Bi-214 | | 3.808E-01 | 18.28 | 6.960E-02 | 7.410E-02 | 1.352E-02 |
| Co-60 | #AB | -1.579E-04 | 19770.00 | 3.121E-02 | 3.121E-02 | 2.570E-02 |
| Cs-137 | #AB | 5.360E-03 | 466.20 | 2.498E-02 | 2.499E-02 | 2.003E-02 |
| Eu-152 | #AB | 5.384E-05 | 101600.00 | 5.467E-02 | 5.467E-02 | 4.503E-02 |
| Eu-154 | #AB | -3.879E-04 | 22860.00 | 8.865E-02 | 8.865E-02 | 7.298E-02 |
| K-40 | | 1.199E+01 | 9.48 | 1.137E+00 | 1.413E+00 | 2.463E-01 |
| Pa-234 | #AB | -3.353E-02 | 485.40 | 1.628E-01 | 1.628E-01 | 1.304E-01 |
| Pb-210 | #AB | -1.246E+00 | 315.30 | 3.929E+00 | 3.930E+00 | 3.150E+00 |
| Pb-212 | | 3.813E-01 | 17.26 | 6.581E-02 | 7.197E-02 | 2.722E-02 |
| Pb-214 | | 3.384E-01 | 20.10 | 6.802E-02 | 7.227E-02 | 2.638E-02 |
| Ra-226 | # | 6.781E-01 | 71.06 | 4.819E-01 | 4.846E-01 | 3.568E-01 |
| Th-230 | #AB | -6.473E+00 | 166.10 | 1.075E+01 | 1.081E+01 | 8.535E+00 |
| Th-234 | #AB | 2.959E-02 | 1503.00 | 4.449E-01 | 4.449E-01 | 3.651E-01 |
| Tl-208 | | 1.223E-01 | 27.61 | 3.377E-02 | 3.473E-02 | 1.480E-02 |
| U-235 | | 2.908E-02 | 108.40 | 3.152E-02 | 3.160E-02 | 2.529E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 1.432E+01

Analyst: Philip Smith

Reviewer: Philip Smith
 Review Date: 3/28/2011 12:32

TetraTech Hunter's Point Lab

Sample ID: 06-PD1MH769-001-01
Sample Description: 06-D29-00-5A; GMP

Detector: HPGe #4 50-TP42236A Spectrum ID: 4_20110325_003
Contract: Shaw Sample Type: SAMPLE
Unit Number: MH769 Matrix: S
Sample Time: 3/17/2011 10:15 Live Time: 2700 sec
Acquisition Time: 3/25/2011 08:35:17 Real Time: 2701 sec
Analysis Time: 3/25/2011 09:20 Dead Time: 0.05 %
Analysis Quantity: 3.340E+02 g

Efficiency: HPGe #4 Tuna Can Soil Solid 83490-918
Efficiency Cal Date: 1/19/2011 20:43
Library: GenericAnalysis.lib
Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | | 2.674E-01 | 42.40 | 1.134E-01 | 1.149E-01 | 6.599E-02 |
| Am-241 | #AB | -7.051E-02 | 223.80 | 1.578E-01 | 1.579E-01 | 1.256E-01 |
| Bi-212 | #AB | 1.274E-01 | 157.30 | 2.003E-01 | 2.005E-01 | 1.514E-01 |
| Bi-214 | # | 1.456E-01 | 46.65 | 6.792E-02 | 6.862E-02 | 4.692E-02 |
| Co-60 | #AB | -1.138E-02 | 356.70 | 4.060E-02 | 4.060E-02 | 3.244E-02 |
| Cs-137 | # | 2.131E-02 | 103.80 | 2.213E-02 | 2.218E-02 | 1.544E-02 |
| Eu-152 | #AB | 1.903E-03 | 2915.00 | 5.549E-02 | 5.549E-02 | 4.552E-02 |
| Eu-154 | #AB | 0.000E+00 | 2000.00 | 3.667E-02 | 3.667E-02 | 3.021E-02 |
| K-40 | | 1.177E+01 | 9.55 | 1.124E+00 | 1.394E+00 | 2.280E-01 |
| Pa-234 | #AB | 0.000E+00 | 2000.00 | 3.214E-02 | 3.214E-02 | 2.135E-01 |
| Pb-210 | #AB | 2.519E+00 | 163.90 | 4.128E+00 | 4.135E+00 | 3.210E+00 |
| Pb-212 | | 3.537E-01 | 18.54 | 6.558E-02 | 7.093E-02 | 2.771E-02 |
| Pb-214 | | 2.462E-01 | 27.33 | 6.729E-02 | 6.959E-02 | 4.010E-02 |
| Ra-226 | AB | 2.330E-01 | 196.90 | 4.588E-01 | 4.591E-01 | 3.627E-01 |
| Th-230 | #AB | 2.010E+00 | 418.30 | 8.408E+00 | 8.415E+00 | 6.785E+00 |
| Th-234 | #AB | 2.577E-01 | 145.40 | 3.746E-01 | 3.754E-01 | 2.926E-01 |
| Tl-208 | # | 9.351E-02 | 34.48 | 3.224E-02 | 3.283E-02 | 1.831E-02 |
| U-235 | | 2.800E-02 | 99.30 | 2.780E-02 | 2.788E-02 | 2.083E-02 |

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.808E+01

Analyst: Philip Smith

Reviewer: Philip Smith
Review Date: 3/28/2011 12:33

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH787-001
 Sample Description: 06-D25-00-2C

 Detector: HPGe #11 51-TP32744A Spectrum ID: 11_20111114_006
 Contract: Shaw Sample Type: SAMPLE
 Unit Number: MH787 Matrix: S
 Sample Time: 11/2/2011 11:30 Live Time: 5400 sec
 Acquisition Time: 11/14/2011 10:05:39 Real Time: 5407 sec
 Analysis Time: 11/14/2011 11:35 Dead Time: 0.14 %
 Analysis Quantity: 3.120E+02 g

Efficiency: HPGe #11 Tuna Can Soil Solid 83491-918
 Efficiency Cal Date: 1/28/2011 17:38
 Library: GenericAnalysis.lib
 Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | # | 2.383E-01 | 34.59 | 8.242E-02 | 8.407E-02 | 4.964E-02 |
| Am-241 | #AB | -5.029E-02 | 286.90 | 1.443E-01 | 1.443E-01 | 1.167E-01 |
| Bi-212 | #AB | 1.010E-01 | 143.70 | 1.451E-01 | 1.452E-01 | 1.113E-01 |
| Bi-214 | | 3.789E-01 | 16.19 | 6.135E-02 | 6.636E-02 | 2.096E-02 |
| Co-60 | #AB | -3.972E-04 | 5781.00 | 2.296E-02 | 2.296E-02 | 1.888E-02 |
| Cs-137 | | 4.798E-01 | 10.37 | 4.973E-02 | 5.935E-02 | 1.271E-02 |
| Eu-152 | #AB | 2.503E-02 | 187.00 | 4.679E-02 | 4.683E-02 | 3.694E-02 |
| Eu-154 | #AB | 3.752E-02 | 167.70 | 6.292E-02 | 6.297E-02 | 4.831E-02 |
| K-40 | | 1.748E+01 | 5.65 | 9.869E-01 | 1.573E+00 | 1.145E-01 |
| Pa-234 | #AB | 0.000E+00 | 2000.00 | 6.396E-02 | 6.396E-02 | 1.497E-01 |
| Pb-210 | #AB | 0.000E+00 | 2000.00 | 5.014E+00 | 5.014E+00 | 4.462E+00 |
| Pb-212 | | 3.925E-01 | 13.52 | 5.306E-02 | 6.095E-02 | 2.297E-02 |
| Pb-214 | | 4.154E-01 | 19.78 | 8.215E-02 | 8.744E-02 | 3.449E-02 |
| Ra-226 | | 3.227E-01 | 122.70 | 3.959E-01 | 3.967E-01 | 3.126E-01 |
| Th-230 | #AB | -4.158E+00 | 217.70 | 9.051E+00 | 9.079E+00 | 7.292E+00 |
| Th-234 | # | 7.988E-01 | 49.15 | 3.926E-01 | 3.999E-01 | 2.333E-01 |
| Tl-208 | | 1.088E-01 | 24.56 | 2.673E-02 | 2.769E-02 | 1.564E-02 |
| U-235 | | 4.669E-02 | 52.55 | 2.453E-02 | 2.479E-02 | 1.803E-02 |

- All peaks for activity calculation had bad shape.
 A - Activity < MDA
 B - Activity < Critical Level

Total Activity 2.083E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
 Review Date: 11/15/2011 12:54

TetraTech Hunter's Point Lab

Sample ID: 06-PD1-MH785-001
Sample Description: 06-D25-00-3A

Detector: HPGe #9 51-TP42227A Spectrum ID: 9_20111114_005
Contract: Shaw Sample Type: SAMPLE
Unit Number: MH785 Matrix: S
Sample Time: 11/2/2011 13:30 Live Time: 2700 sec
Acquisition Time: 11/14/2011 09:10:59 Real Time: 2704 sec
Analysis Time: 11/14/2011 09:56 Dead Time: 0.17 %
Analysis Quantity: 3.140E+02 g

Efficiency: HPGe #9 Tuna Can Soil Solid 83490-918
Efficiency Cal Date: 2/8/2011 08:53
Library: GenericAnalysis.lib
Analysis Engine: Env32 G53W4.26

| Nuclide | Flags | Activity pCi/g | 2-Sigma Counting Uncert % | 2-Sigma Counting Uncert pCi/g | 2-Sigma Total Uncert pCi/g | Minimum Detectable Activity pCi/g |
|---------|-------|-------------------|------------------------------------|--|-------------------------------------|--|
| Ac-228 | # | 1.829E-01 | 68.55 | 1.254E-01 | 1.260E-01 | 8.605E-02 |
| Am-241 | #AB | 6.745E-03 | 1965.00 | 1.326E-01 | 1.326E-01 | 1.087E-01 |
| Bi-212 | #AB | 1.325E-01 | 175.90 | 2.331E-01 | 2.333E-01 | 1.788E-01 |
| Bi-214 | | 1.951E-01 | 36.48 | 7.115E-02 | 7.233E-02 | 4.426E-02 |
| Co-60 | #AB | 4.178E-03 | 376.20 | 1.572E-02 | 1.572E-02 | 3.114E-02 |
| Cs-137 | # | 2.693E-02 | 109.50 | 2.949E-02 | 2.955E-02 | 2.146E-02 |
| Eu-152 | #AB | -6.260E-03 | 948.60 | 5.939E-02 | 5.939E-02 | 4.831E-02 |
| Eu-154 | #AB | 3.494E-02 | 298.70 | 1.044E-01 | 1.044E-01 | 8.202E-02 |
| K-40 | | 2.026E+01 | 7.55 | 1.530E+00 | 2.087E+00 | 2.919E-01 |
| Pa-234 | #AB | 6.979E-02 | 238.80 | 1.667E-01 | 1.668E-01 | 1.285E-01 |
| Pb-210 | #AB | -1.250E+00 | 387.50 | 4.844E+00 | 4.845E+00 | 3.900E+00 |
| Pb-212 | | 2.640E-01 | 23.26 | 6.141E-02 | 6.464E-02 | 3.691E-02 |
| Pb-214 | | 3.349E-01 | 25.05 | 8.391E-02 | 8.731E-02 | 3.617E-02 |
| Ra-226 | # | 4.379E-01 | 106.40 | 4.659E-01 | 4.671E-01 | 3.527E-01 |
| Th-230 | #AB | 8.003E+00 | 143.40 | 1.147E+01 | 1.155E+01 | 8.992E+00 |
| Th-234 | | 6.933E-01 | 67.56 | 4.684E-01 | 4.730E-01 | 2.704E-01 |
| Tl-208 | # | 8.379E-02 | 40.34 | 3.380E-02 | 3.426E-02 | 2.031E-02 |
| U-235 | # | 2.842E-02 | 112.80 | 3.207E-02 | 3.214E-02 | 2.447E-02 |

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 3.076E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
Review Date: 11/15/2011 12:53

Appendix N
Radiological Unrestricted Release Recommendations for
Parcel D-1 (Phase 1)



Matthew Rodriguez
Secretary for
Environmental Protection



Department of Toxic Substances Control

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Edmund G. Brown Jr.
Governor

August 30, 2013

Mr. Keith Forman
Department of the Navy
1455 Frazee Road Suite 900
San Diego, CA 92108-4310

RADIOLOGICAL UNRESTRICTED RELEASE FOR THE FORMER BUILDING 313, 313A, AND 322 SITES, PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA

Dear Mr. Forman:

Thank you for the opportunity to review the Final Final Status Survey Report for the Former Building 313, 313A, and 322 Sites at Hunters Point Naval Shipyard, San Francisco, California dated March 2013 (Final Report). Comments to a Draft Final Status Survey Report were provided by the Department of Toxic Substances Control (DTSC) on January 8, 2013 and the California Department of Public Health – Environmental Health Branch (CDPH-EMB) on January 17, 2013. The Final Report has been adequately revised to incorporate and address all comments.

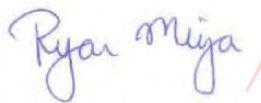
The former Building 313, 313A, and 322 Sites are located in Parcel D-1 northwest of Building 274 along Morrell Street. The buildings were demolished at some unknown time in the past prior to August 2004, and only compacted soil, asphalt, and underground sewer laterals remain. The 2004 Historical Radiological Assessment states that the buildings were once used by the Naval Radiological Defense Laboratory Instrumentation Laboratory as a stockroom and storage areas. The radionuclides of concern (ROCs) for the Former Building 313, 313A, and 322 Sites include cesium-137 (^{137}Cs), radium-226 (^{226}Ra), plutonium-239 (^{239}Pu), thorium-232 (^{232}Th), and strontium-90 (^{90}Sr). The planned future use of the area is as a maritime industrial area.

Thank you for coordinating with and transferring soil samples to CDPH-EMB in order to conduct their own independent laboratory analysis. Enclosed please find CDPH-EMB's memorandum recommending radiological unrestricted release for the Building 313, 313A, and 322 Sites. DTSC concurs with CDPH-EMB's memorandum supporting release for unrestricted use, with respect to radiological issues, at the former Building 313, 313A, and 322 Sites.

Mr. Keith Forman
August 30, 2013
Page 2

If you have any questions, please contact me at 510-540-3775 or by e-mail at
Ryan.Miya@dtsc.ca.gov.

Sincerely,

 Digitally signed by Ryan Miya
DN: cn=Ryan Miya, o=DTSC, ou,
email=Ryan.Miya@dtsc.ca.gov, c=US
Date: 2013.08.30 16:06:11 -07'00'

Ryan Miya, Ph.D.
Senior Hazardous Substances Scientist
Brownfields and Environmental Restoration
Program - Berkeley

Enclosure

E-mail distribution with enclosure:

Mr. Craig Cooper, U.S. Environmental Protection Agency Region IX
Mr. Ross Steenson, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Tina Low, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Amy Brownell, City of San Francisco
Mr. Pat Brooks, Department of the Navy
Mr. Christopher Yantos, Department of the Navy
Ms. Tracy Jue, California Department of Public Health
Mr. Ron Pilorin, California Department of Public Health
Ms. Leslie Lundgren, CH2M HILL
Mr. Leon Muhammad, Community resident
Dr. Ray Tompkins, Community resident
Ms. Diane Wesley Smith, Community resident
Ms. Marie Harrison, Greenaction
Mr. Alex Lantsberg, IBNA Boardmember



California Department of Public Health
MEMORANDUM

DATE: August 28, 2013

TO: Stephen Woods, Department of Defense Project Manager
Center for Environmental Health
1500 Capitol Avenue, MS 0511

VIA: David Mazzera, Ph.D, Acting Chief *David M. Mazzera 8/29/13*
Division Drinking Water and Environmental Management
1616 Capitol Avenue, MS 7400

FROM: Kelvin Yamada, Chief *KY 8/28/13*
Environmental Management Branch
1616 Capitol Avenue, MS 7402

Subject: Radiological Unrestricted Release Recommendation for Building Sites 313, 313A and 322

Through the California Department of Toxic Substances Control (DTSC), the US Department of Navy (DON) seeks a radiological unrestricted release recommendation (RURR) from the Environmental Management Branch (EMB), California Department of Public Health (CDPH) for Building Sites 313, 313A and 322 within the former Hunters Point Shipyard. The DON request for an RURR is based upon the *Final Status Survey Report Former Building Sites 313, 313A and 322*. EMB has completed its review of the submitted DON documentation associated with identification of the radionuclide of concern, its location of use and investigative surveys prior to final laboratory closure.

This RURR is restricted to the Specific Survey Units the DON performed surveys on at the Building Sites 313, 313A and 322. The specific survey units are:

1. D24-SU1 Class 1 Building Sites 313 and 313A (488 m²)
2. D24-SU2 Class 1 Building Sites 322 (92 m²)
3. D24-SU3 Class 1 15 feet area around the three building footprints (737 m²)
4. D24-SU4 Class 1 area extending out as a 15 feet buffer zone around original survey units (796 m²)

Building Sites 313, 313A and 322 are located northwest of Building 274, within Parcel D-1. The three buildings were demolished in August 2004. After the demolition, only the compacted soil, asphalt, and underground sewer laterals were left in place.

The DON conducted surface gamma walk over surveys and collected soil, asphalt, concrete and swipe samples analyzed by gamma spectroscopy. The samples from soil and asphalt showed no results exceeding the release criteria.

The DON investigated all buildings prior to demolition. Building 313 was a wooden building (3600 ft²) used for instrumentation laboratory and storage areas. The DON surveyed and investigated the building. ¹³⁷Cs (Cs-137) was found above action levels. The DON remediated the soil and resurvey the building. Building 313A, a small building (740 ft²) used for nuclear instrumentation and had an elevated ¹³⁷Cs soil inside the manhole. The soil in the man-hole was remediated and removed. Building 322 is an (860 ft²) was used for nuclear radiological defense laboratory uses. This site also had impacted ¹³⁷Cs soil which was remediated and removed.

The Navy collected soil samples and solid samples for all the Class 1 SU's and conducted 100 percent scan survey on all survey units. All the soil samples were collected by the DON with one duplicate soil sample provided to CDPH for confirmatory testing. It should be noted that the ¹³⁷Cs and ²²⁶Ra (186 keV peak) values recorded by the CDPH are above the background level. The 186 keV value for ²²⁶Ra is at or above background due to interference from the ²³⁵U with the similar energy as ²²⁶Ra. CDPH decided to quantify both ²²⁶Ra soil and let the samples develop equilibrium within 40 days to account for in growth from short lived Alpha energies from ²²⁶Ra daughters.

Based on the review of all relevant submitted documents by DON, and the subsequent confirmatory soil analysis by EMB, EMB recommends radiological unrestricted release for Building Sites 313, 313A and 322. EMB reviewed all relevant radiological documents based on current guidance. This review meets requirements under California Code of Regulations Title 17, Section 30256.

If you need further assistance, please contact Kelvin Yamada at 916-449-5661 or via email Kelvin.Yamada@cdph.ca.gov.



Matthew Rodriguez
Secretary for
Environmental Protection



Department of Toxic Substances Control

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Edmund G. Brown Jr.
Governor

August 30, 2013

Mr. Keith Forman
Department of the Navy
1455 Frazee Road Suite 900
San Diego, CA 92108-4310

RADIOLOGICAL UNRESTRICTED RELEASE FOR THE FORMER BUILDING 383
SITE, PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO,
CALIFORNIA

Dear Mr. Forman:

Thank you for the opportunity to review the Final Final Status Survey Report for the Former Building 383 Site at Hunters Point Naval Shipyard, San Francisco, California dated March 2013 (Final Report). Comments to a Draft Final Status Survey Report were provided by the Department of Toxic Substances Control (DTSC) on January 11, 2013 and the California Department of Public Health – Environmental Health Branch (CDPH-EMB) on January 17, 2013. The Final Report has been adequately revised to incorporate and address all comments.

Building 383 was a two-story, steel and concrete, flat-roofed structure measuring approximately 110 feet by 60 feet. The building was located between berths 16 and 20 on Gun Mole Pier in Parcel D-1, at Hunters Point Naval Shipyard. Building 383 was built in 1985 and demolished in early 2011. The Building 383 footprint and surrounding buffer zone is being evaluated in this report for unrestricted release. Building 383 was constructed over the former location of a small building where radioluminescent deck markers from ships were stored and managed. The Building 383 Area was designated as a radiologically impacted site because of the use of the area before construction of the building. The planned future reuse of the property is as shoreline open space. The radionuclides of concern for the Building 383 Area are cesium-137 (^{137}Cs), plutonium-239 (^{239}Pu), strontium-90 (^{90}Sr), and radium-226 (^{226}Ra).

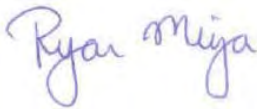
Thank you for coordinating with and transferring soil samples to CDPH-EMB in order to conduct their own independent laboratory analysis. Enclosed please find CDPH-EMB's memorandum recommending radiological unrestricted release for the Building 383 Site.

Mr. Keith Forman
August 30, 2013
Page 2

DTSC concurs with CDPH-EMB's memorandum supporting release for unrestricted use, with respect to radiological issues, at the former Building 383 Site.

If you have any questions, please contact me at 510-540-3775 or by e-mail at Ryan.Miya@dtsc.ca.gov.

Sincerely,



Digitally signed by Ryan Miya
DN: cn=Ryan Miya, o=DTSC, ou,
email=Ryan.Miya@dtsc.ca.gov, c=US
Date: 2013.08.30 16:00:03 -07'00'

Ryan Miya, Ph.D.
Senior Hazardous Substances Scientist
Brownfields and Environmental Restoration
Program - Berkeley

Enclosure

E-mail distribution with enclosure:

Mr. Craig Cooper, U.S. Environmental Protection Agency Region IX
Mr. Ross Steenson, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Tina Low, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Amy Brownell, City of San Francisco
Mr. Pat Brooks, Department of the Navy
Mr. Christopher Yantos, Department of the Navy
Ms. Tracy Jue, California Department of Public Health
Mr. Ron Pilorin, California Department of Public Health
Ms. Leslie Lundgren, CH2M HILL
Mr. Leon Muhammad, Community resident
Dr. Ray Tompkins, Community resident
Ms. Diane Wesley Smith, Community resident
Ms. Marie Harrison, Greenaction
Mr. Alex Lantsberg, IBNA Boardmember



California Department of Public Health
MEMORANDUM

DATE: August 28, 2013

TO: Stephen Woods, Department of Defense Project Manager
Center for Environmental Health
1500 Capitol Avenue, MS 0511 *SW 8-23-13*

VIA: David Mazzer, Ph.D, Acting Chief
Division Drinking Water and Environmental Management
1616 Capitol Avenue, MS 7400 *David Mazzer 8/23/13*

FROM: Kelvin Yamada, Chief
Environmental Management Branch
1616 Capitol Avenue, MS 7402 *KY 8/28/13*

Subject: Radiological Unrestricted Release Recommendation for Building Site 383

Through the California Department of Toxic Substances Control (DTSC), the US Department of Navy (DON) seeks a radiological unrestricted release recommendation (RURR) from the Environmental Management Branch (EMB), California Department of Public Health (CDPH) for Building Site 383 within the former Hunters Point Shipyard. The DON request for an RURR is based upon the *Final Status Survey Report Former Building Site 383*. EMB has completed its review of the submitted DON documentation associated with identification of the radionuclide of concern, its location of use and investigative surveys prior to final laboratory closure.

This RURR is restricted to the specific Survey units the DON performed surveys on at the Building 383 site. The specific survey units are 1 Class 1 Survey Unit and 1 Class 2 Survey Unit. The specific survey units are

1. Survey Unit 1 (605 m²) Class 1
2. Survey Unit 2 (537 m²) 15 ft. buffer zone around Class 1

The Historical Radiological Assessment (HRA) states that the Building Site 383 was used previously to store radioluminescent deck markers from ships in a building located on the Gun Mole Pier. The Building was demolished in 2011, leaving a building footprint.

The Department of the Navy (DON) determined that the isotopes of concern in the Building site 383 Site are Americium-241 (²⁴¹Am), Cesium-137 (¹³⁷Cs), Plutonium-239 (²³⁹Pu), Radium-226 (²²⁶Ra), and strontium-90 (⁹⁰Sr) and tritium ³H. The soil in the area previously belonging to Building Sites 383 has been surveyed for fixed

static gross alpha and gross beta emissions, and static/scan measurements for gamma radiation. All measurements used the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) as a guide

All the soil samples collected by the DON, one duplicate soil sample were given to the CDPH for confirmatory testing. The results of the soil sample are given in the table below (all units in pCi/g). It should be noted that the ^{137}CS and ^{226}Ra (186 keV peak) values recorded by the CDPH are above the background level. The 186 keV value for ^{226}Ra is at or above background is due to interference from the ^{235}U with the similar energy as ^{226}Ra . California Department of Public Health (CDPH) decided to quantify both ^{226}Ra soil let the samples develop equilibrium within 40 days to account for in growth from short lived Alpha energies from ^{226}Ra daughters.

Based on the review of all relevant submitted documents by DON, and the subsequent confirmatory soil analysis by EMB, EMB recommends radiological unrestricted release for Building Site 383. EMB reviewed all relevant radiological documents based on current guidance. This review meets requirements under California Code of Regulations Title17, Section 30256.

If you need further assistance, please contact Kelvin Yamada at 916-449-5661 or via email Kelvin.Yamada@cdph.ca.gov.



Matthew Rodriguez
Secretary for
Environmental Protection



Department of Toxic Substances Control

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Edmund G. Brown Jr.
Governor

October 11, 2013

Mr. Keith Forman
Department of the Navy
1455 Frazee Road Suite 900
San Diego, CA 92108-4310

RADIOLOGICAL UNRESTRICTED RELEASE FOR THE SOUTH PIER AREA, PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA

Dear Mr. Forman:

Thank you for the opportunity to review the Final Final Status Survey Report for the South Pier Area at Hunters Point Naval Shipyard, San Francisco, California dated June 2013 (Final Report). Comments to a Draft Final Status Survey Report were provided by the Department of Toxic Substances Control (DTSC) on March 6, 2013 and the California Department of Public Health – Environmental Health Branch (CDPH-EMB) on March 20, 2013. The Final Report has been adequately revised to incorporate and address all comments.

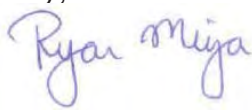
The South Pier Area (South Pier) is located to the north of Gun Mole Pier in Work Area 30 within Parcel D-1 at Hunters Point Naval Shipyard. This final status survey (FSS) report describes the survey and remediation of South Pier soil and remaining infrastructure only. South Pier is approximately 100 feet wide by 1,000 feet long and is constructed of concrete-reinforced wood cofferdams that were floated into place and filled with rock and dredge spoils. Remaining structures present on South Pier include the Building 311 foundation, the outer pier wall and utility access hoods, a subgrade utility pipe chase, and miscellaneous electrical service pad or vaults (all constructed of concrete). The land portions of Berths 10 through 13 (considered to be the 50 feet of land adjacent to water's edge) were addressed by this work. Radiological impacts to Berths 10 through 13 may have resulted from berthing of Operations Crossroads ships, berthing of the YGN-73 (radioactive waste disposal barge), and usage by the Naval Radiological Defense Laboratory (berthing of experimental barges and YAGs-39 and -40). YAG-39 (SS George Eastman) and YAG-40 (SS Grandville S. Hall) were Liberty Ships converted to U.S. Department of the Navy ships and were utilized as support vessels in atomic weapons tests. The radionuclides of concern for South Pier are

cesium-137 (^{137}Cs), plutonium-239 (^{239}Pu), radium-226 (^{226}Ra), and strontium-90 (^{90}Sr).
The planned future use of the area is as a maritime-industrial area.

Thank you for coordinating with and transferring soil samples to CDPH-EMB in order to conduct their own independent laboratory analysis. Enclosed please find CDPH-EMB's memorandum recommending radiological unrestricted release for the South Pier Births 10 through 13. DTSC concurs with CDPH-EMB's memorandum supporting release for unrestricted use, with respect to radiological issues, at the former South Pier Area.

If you have any questions, please contact me at 510-540-3775 or by e-mail at Ryan.Miya@dtsc.ca.gov.

Sincerely,



Digitally signed by Ryan Miya
DN: cn=Ryan Miya, o=DTSC, ou,
email=Ryan.Miya@dtsc.ca.gov, c=US
Date: 2013.10.11 16:54:41 -07'00'

Ryan Miya, Ph.D.
Senior Environmental Scientist
Brownfields and Environmental Restoration
Program - Berkeley

Enclosure

E-mail distribution with enclosure:

Mr. Craig Cooper, U.S. Environmental Protection Agency Region IX
Mr. Ross Steenson, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Tina Low, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Amy Brownell, City of San Francisco
Ms. Catherine Haran, Department of the Navy
Mr. Christopher Yantos, Department of the Navy
Ms. Tracy Jue, California Department of Public Health
Mr. Ron Pilorin, California Department of Public Health
Ms. Leslie Lundgren, CH2M HILL
Mr. Leon Muhammad, Community resident
Dr. Ray Tompkins, Community resident
Ms. Diane Wesley Smith, Community resident
Ms. Marie Harrison, Greenaction
Mr. Alex Lantsberg, IBNA Boardmember



California Department of Public Health
MEMORANDUM

DATE: October 10, 2013

TO: Stephen Woods, Department of Defense Project Manager
Center for Environmental Health
1500 Capitol Avenue, MS 0511

VIA: David Mazzer, Ph.D, Acting Chief
Division Drinking Water and Environmental Management
1616 Capitol Avenue, MS 7400

FROM: Kelvin Yamada, Chief
Environmental Management Branch
1616 Capitol Avenue, MS 7402

Subject: Radiological Unrestricted Release Recommendation for South Pier Berths 10-13

Through the California Department of Toxic Substances Control (DTSC), the US Department of Navy (DON) seeks a radiological unrestricted release recommendation (RURR) from the Environmental Management Branch (EMB), California Department of Public Health (CDPH) for South Pier Berths 10-13 within the former Hunters Point Shipyard. The DON request for a RURR on the Former South Pier Berths 10-13. EMB has completed its review of the submitted DON documentation associated with identification of the radionuclide of concern, its location of use and investigative surveys prior to closure.

This RURR is restricted to the specific Survey Units (SUs) the DON performed surveys on Berths 10-13 of South Pier. The specific SUs are:

1. SP01-SU1 Class 1 (918 m²)
2. SP02-SU2 Class 1 (933 m²)
3. SP03-SU3 Class 1 (934 m²)
4. SP04-SU4 Class 1 (938 m²)
5. SP05-SU5 Class 1 (940 m²)
6. SP06-SU6 Class 1 (924 m²)
7. SP07-SU7 Class 1 (918 m²)
8. SP08-SU8 Class 1 (891 m²)
9. SP09-SU9 Class 1 (920 m²)
10. SP10-SU10 Class 1 (918 m²)
11. SP11-SU11 Class 1 (920 m²)
12. SP12-SU12 Class 1 (916 m²)
13. SP13-SU13 Class 1 (183 m²)
14. SP14-SU14 Class 2 (216 m²)

The South Pier is located in Parcel D-1 North of the Gun Mole Pier. The land portions in Berths 10-13 are radiologically impacted due to berthing of Operations Crossroads ships, radioactive waste disposal barge, and usage of Naval by the Radiological Defense Laboratory. The radionuclides of concern within the South Pier were Cesium-137 (^{137}Cs), Radium-226 (^{226}Ra), and Strontium-90 (^{90}Sr). The South Pier is constructed in concrete reinforced wood cofferdams that were floated into place and filled with rock and dredge. The DON surveyed the radiologically impacted Berths 10-13 and remediated the radiological impacted areas.

The DON conducted surface gamma walk over surveys and collected soil, asphalt, concrete and swipe samples analyzed by gamma spectroscopy. The samples from soil and asphalt showed exceeding results above the release criteria. The DON remediated 245 cubic yards from the designated Class 1 SU's

The Navy collected soil samples and solid samples for all the Class 1 SU's and conducted 100 percent scan survey on all survey units. All the soil samples were collected by the DON with one duplicate soil sample provided to CDPH for confirmatory testing. It should be noted that the ^{137}Cs and ^{226}Ra (186 keV peak) values recorded by the CDPH are above the background level. The 186 keV value for ^{226}Ra is at or above background due to interference from the ^{235}U with the similar energy as ^{226}Ra . CDPH decided to quantify both ^{226}Ra soil and let the samples develop equilibrium within 40 days to account for in growth from short lived Alpha energies from ^{226}Ra daughters.

Based on the review of all relevant submitted documents by DON, and the subsequent confirmatory soil analysis by EMB, EMB recommends radiological unrestricted release for South Pier Berths 10-13. EMB reviewed all relevant radiological documents based on current guidance. This review meets requirements under Title 17 California Code of Regulations, Section 30256.

If you need further assistance, please contact Kelvin Yamada at 916-449-5661 or via email Kelvin.Yamada@cdph.ca.gov.



Matthew Rodriguez
Secretary for
Environmental Protection



Department of Toxic Substances Control

Deborah O. Raphael, Director
700 Heinz Avenue
Berkeley, California 94710-2721



Edmund G. Brown Jr.
Governor

March 18, 2013

Mr. Keith Forman
Department of the Navy
1455 Frazee Road Suite 900
San Diego, CA 92108-4310

RADIOLOGICAL RELEASE FOR UNRESTRICTED USE FOR BUILDING 274,
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD, SAN FRANCISCO, CALIFORNIA

Dear Mr. Forman:

Thank you for the opportunity to review the Final Final Status Survey Results for Building 274 at Hunters Point Naval Shipyard, San Francisco, California dated October 8, 2012 (Final Report). Comments to a Draft Final Status Survey Report were provided by the Department of Toxic Substances Control (DTSC) on September 10, 2012 and the California Department of Public Health – Environmental Health Branch (CDPH-EMB) on September 12, 2012. The Final Report has been adequately revised to incorporate and address all comments.

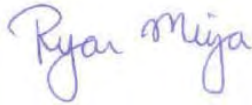
Building 274 is located on 3rd Avenue between E Street and Morrell Street within Parcel D-1. Building 274 is a shop building with a shallow gable roof and corrugated metal siding, measuring 100 feet by 40 feet. Interior rooms within Building 274 (prior to removal in preparation of the final survey) were built with traditional wood and sheetrock materials. Interior rooms consisted of nine enclosed rooms, two toilet facilities, and a large “open air” work area. The floor of Building 274 consists of a concrete pad. Building 274 was previously used for decontamination training and office space. While the building is currently vacant and unoccupied, the planned future use of the area is identified as an industrial use area.

Thank you for coordinating with CDPH-EMB to allow them to conduct their own post-remediation independent confirmation scan in Building 274 on December 19, 2012. Enclosed please find CDPH-EMB's memorandum recommending radiological unrestricted release for Building 274. DTSC concurs with CDPH-EMB's memorandum supporting release for unrestricted use, with respect to radiological issues, at Building 274.

Mr. Forman
March 18, 2013
Page 2

If you have any questions, please contact me at 510-540-3775 or by e-mail at rmiya@dtsc.ca.gov.

Sincerely,



Digitally signed by Ryan Miya
DN: cn=Ryan Miya, o=DTSC, ou,
email=Ryan.Miya@dtsc.ca.gov, c=US
Date: 2013.03.18 10:35:13 -07'00'

Ryan Miya
Senior Hazardous Substances Scientist
Brownfields and Environmental Restoration
Program - Berkeley

Enclosure

E-mail distribution with enclosure:

Mr. Craig Cooper, U.S. Environmental Protection Agency Region IX
Mr. Ross Steenson, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Tina Low, Regional Water Quality Control Board, San Francisco Bay Region
Ms. Amy Brownell, City of San Francisco
Ms. Melanie Kito, Department of the Navy
Mr. Chris Yantos, Department of the Navy
Ms. Tracy Jue, California Department of Public Health
Mr. Larry Morgan, California Department of Public Health
Ms. Leslie Lundgren, CH2M HILL
Mr. Leon Muhammad, Community resident
Dr. Ray Tompkins, Community resident
Ms. Diane Wesley Smith, Community resident
Ms. Marie Harrison, Greenaction
Mr. Alex Lantsberg, IBNA Boardmember



California Department of Public Health
MEMORANDUM

DATE: March 15, 2013

TO: Stephen Woods, Department of Defense Project Manager
Center for Environmental Health
1500 Capitol Avenue, MS 0511 *Stephen Woods*

VIA: *for* Leah Godsey Walker, Chief *Drinking Water*
Division Drinking Water and Environmental Management
1616 Capitol Avenue, MS 7400

FROM: Kelvin Yamada, Branch Chief *Mark Godsey for*
Environmental Management Branch
1616 Capitol Avenue, MS 7402
916-449-5661

Subject: Radiological Unrestricted Release Recommendation for Building 274
Located in Parcel D-1, Hunters Point Shipyard, San Francisco, California

Through the California Department of Toxic Substances Control (DTSC), the US Department of Navy (DON) seeks a radiological unrestricted release recommendation (RURR) from the Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) for Building 274 within Parcel D-1 on Hunter Point Shipyard (HPS). The EMB has reviewed relevant submitted DON documentation associated with identification of radiological contamination, and subsequent remediation of contamination from Building 274.

Building 274 (B274) is a single story wood framed building sited on about 4,000 square feet area within Parcel D-1. B274 was previously used for decontamination training and storage of radioactive materials. DON personnel were trained to decontaminate ships and equipment by sand blasting and other means. The radionuclides of concern within B274 were Cesium-137, Radium-226, and Strontium-90. In keeping with Multi-Agency Radiation Survey and Site Investigation Manual, the DON conducted a survey with fixed static gross alpha and beta emissions, and conducted static scans measurements for gamma radiation. There were eight survey units in the building.

The EMB reviewed all relevant radiological documents based on current guidance, and this review meets requirements under California Code of Regulations, Title 17, Section 30256. Based on the review of all relevant submitted documents by DON, and confirmatory analysis of completed surveys by EMB, EMB recommends radiological unrestricted release for Building 274.

If you need further assistance, please contact Kelvin.

Appendix O

Clean Import Fill Data

JERICO BACKFILL

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-001

Radiochemistry

Lab Sample ID: F1F020455-001
 Work Order: MJ0CQ
 Matrix: SOLID

Date Collected: 05/13/11 1000
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.237 | | 0.153 | | 0.086 | 30 | 06/03/11 | 06/16/11 |
| Americium 241 | 0.00712 | U | 0.0852 | | 0.069 | 30 | 06/03/11 | 06/16/11 |
| Bismuth 212 | 0.140 | U | 0.298 | | 0.224 | 30 | 06/03/11 | 06/16/11 |
| Bismuth 214 | 0.369 | | 0.111 | | 0.045 | 30 | 06/03/11 | 06/16/11 |
| Cesium 137 | 0.0124 | U | 0.0414 | 0.0700 | 0.032 | 30 | 06/03/11 | 06/16/11 |
| Cobalt 60 | 0.0 | U | 0.0767 | | 0.063 | 30 | 06/03/11 | 06/16/11 |
| Europium 152 | 0.00712 | U | 0.101 | | 0.082 | 30 | 06/03/11 | 06/16/11 |
| Europium 154 | 0.0476 | U | 0.296 | | 0.236 | 30 | 06/03/11 | 06/16/11 |
| Lead 210 | -0.00360 | U | 0.930 | 1.50 | 0.766 | 30 | 06/03/11 | 06/16/11 |
| Lead 212 | 0.368 | | 0.114 | | 0.055 | 30 | 06/03/11 | 06/16/11 |
| Lead 214 | 0.395 | | 0.120 | | 0.059 | 30 | 06/03/11 | 06/16/11 |
| Potassium 40 | 10.8 | | 1.62 | | 0.265 | 30 | 06/03/11 | 06/16/11 |
| Protactinium 234 | -0.0169 | U | 0.0944 | | 0.076 | 30 | 06/03/11 | 06/16/11 |
| Radium (226) | 0.369 | J | 0.111 | 0.700 | 0.045 | 30 | 06/03/11 | 06/16/11 |
| Thallium 208 | 0.148 | | 0.0500 | | 0.018 | 30 | 06/03/11 | 06/16/11 |
| Thorium 232 | 0.237 | | 0.153 | | 0.086 | 30 | 06/03/11 | 06/16/11 |
| Thorium 234 | 0.0 | U | 0.858 | | 0.707 | 30 | 06/03/11 | 06/16/11 |
| Uranium 235 | 0.0383 | U | 0.164 | | 0.132 | 30 | 06/03/11 | 06/16/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-001 DUP

Radiochemistry

Lab Sample ID: F1F020455-001X
 Work Order: MJOCQ
 Matrix: SOLID

Date Collected: 05/13/11 1000
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.434 | | 0.168 | | 0.115 | 30 | 06/03/11 | 06/16/11 |
| Americium 241 | 0.00207 | U | 0.0948 | | 0.077 | 30 | 06/03/11 | 06/16/11 |
| Bismuth 212 | 0.142 | U | 0.317 | | 0.250 | 30 | 06/03/11 | 06/16/11 |
| Bismuth 214 | 0.413 | | 0.124 | | 0.051 | 30 | 06/03/11 | 06/16/11 |
| Cesium 137 | 0.000253 | U | 0.0384 | 0.0700 | 0.031 | 30 | 06/03/11 | 06/16/11 |
| Cobalt 60 | -0.0166 | U | 0.0524 | | 0.040 | 30 | 06/03/11 | 06/16/11 |
| Europium 152 | -0.00746 | U | 0.0989 | | 0.080 | 30 | 06/03/11 | 06/16/11 |
| Europium 154 | -0.0568 | U | 0.348 | | 0.278 | 30 | 06/03/11 | 06/16/11 |
| Lead 210 | 1.36 | J | 1.75 | 1.50 | 1.17 | 30 | 06/03/11 | 06/16/11 |
| Lead 212 | 0.316 | | 0.128 | | 0.072 | 30 | 06/03/11 | 06/16/11 |
| Lead 214 | 0.371 | | 0.103 | | 0.048 | 30 | 06/03/11 | 06/16/11 |
| Potassium 40 | 9.69 | | 1.57 | | 0.305 | 30 | 06/03/11 | 06/16/11 |
| Protactinium 234 | -0.0515 | U | 0.116 | | 0.091 | 30 | 06/03/11 | 06/16/11 |
| Radium (226) | 0.413 | J | 0.124 | 0.700 | 0.051 | 30 | 06/03/11 | 06/16/11 |
| Thallium 208 | 0.104 | | 0.0519 | | 0.030 | 30 | 06/03/11 | 06/16/11 |
| Thorium 232 | 0.434 | | 0.168 | | 0.115 | 30 | 06/03/11 | 06/16/11 |
| Thorium 234 | 0.131 | U | 0.903 | | 0.783 | 30 | 06/03/11 | 06/16/11 |
| Uranium 235 | 0.0684 | U | 0.154 | | 0.124 | 30 | 06/03/11 | 06/16/11 |

NOTE(S)

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J Result is greater than sample detection limit but less than stated reporting limit.
 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 Kev line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-002

Radiochemistry

Lab Sample ID: F1F020455-002
 Work Order: MJOCR
 Matrix: SOLID

Date Collected: 05/13/11 1005
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|---------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.209 | | 0.233 | | 0.152 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0134 | U | 0.114 | | 0.094 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.0544 | U | 0.472 | | 0.380 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.297 | | 0.143 | | 0.067 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0179 | U | 0.0634 | 0.0700 | 0.054 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.0230 | U | 0.918 | | 0.034 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0394 | U | 0.0878 | | 0.063 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.175 | U | 0.560 | | 0.432 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -1.06 | U | 42.3 | 1.50 | 1.24 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.286 | | 0.127 | | 0.061 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.429 | | 0.124 | | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 6.70 | | 1.76 | | 0.469 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.0353 | U | 0.121 | | 0.095 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.297 | J | 0.143 | 0.700 | 0.067 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0540 | | 0.0528 | | 0.035 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.209 | | 0.233 | | 0.152 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.0286 | U | 0.949 | | 0.839 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.125 | U | 0.205 | | 0.154 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-003

Radiochemistry

Lab Sample ID: F1F020455-003
 Work Order: MJOCT
 Matrix: SOLID

Date Collected: 05/13/11 1010
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|---------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.262 | | 0.191 | | 0.126 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0253 | U | 0.0843 | | 0.067 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.0947 | U | 0.291 | | 0.226 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.319 | | 0.107 | | 0.049 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0115 | U | 0.0340 | 0.0700 | 0.026 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0538 | | 0.044 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0243 | U | 0.106 | | 0.084 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.0459 | U | 0.276 | | 0.219 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.741 | J | 0.911 | 1.50 | 0.679 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.267 | | 0.0896 | | 0.044 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.477 | | 0.112 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.2 | | 1.56 | | 0.263 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0459 | U | 0.117 | | 0.092 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.319 | J | 0.107 | 0.700 | 0.049 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.183 | | 0.0500 | | 0.013 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.262 | | 0.191 | | 0.126 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.114 | U | 0.629 | | 0.508 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0814 | U | 0.184 | | 0.144 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-004

Radiochemistry

Lab Sample ID: F1F020455-004
 Work Order: MJOCW
 Matrix: SOLID

Date Collected: 05/13/11 1015
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.445 | | 0.145 | | 0.060 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0262 | U | 0.104 | | 0.083 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | -0.0662 | U | 2.65 | | 0.215 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.295 | | 0.125 | | 0.061 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00750 | U | 0.0399 | 0.0700 | 0.031 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.00605 | U | 0.0388 | | 0.030 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.00315 | U | 0.106 | | 0.086 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.0979 | U | 0.345 | | 0.268 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 1.30 | J | 1.59 | 1.50 | 1.10 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.332 | | 0.111 | | 0.062 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.292 | | 0.111 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 8.42 | | 1.55 | | 0.497 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0494 | U | 0.124 | | 0.098 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.295 | J | 0.125 | 0.700 | 0.061 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.141 | | 0.0568 | | 0.029 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.445 | | 0.145 | | 0.060 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.151 | U | 0.898 | | 0.780 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | -0.0478 | U | 8.09 | | 0.180 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.
 F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-005

Radiochemistry

Lab Sample ID: F1F020455-005
 Work Order: MJOCX
 Matrix: SOLID

Date Collected: 05/13/11 1020
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.239 | | 0.0986 | | 0.120 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0284 | U | 0.0703 | | 0.055 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.108 | U | 0.301 | | 0.233 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.376 | | 0.124 | | 0.052 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0 | U | 0.0342 | 0.0700 | 0.028 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.00250 | U | 0.0496 | | 0.040 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0214 | U | 0.0884 | | 0.070 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.00701 | U | 0.299 | | 0.245 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.0190 | U | 0.858 | 1.50 | 0.705 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.374 | | 0.114 | | 0.053 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.394 | | 0.113 | | 0.047 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 9.15 | | 1.44 | | 0.227 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.00639 | U | 0.108 | | 0.088 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.376 | J | 0.124 | 0.700 | 0.052 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0850 | | 0.0427 | | 0.024 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.239 | | 0.0986 | | 0.120 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.0954 | U | 0.984 | | 0.805 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | -0.00760 | U | 0.158 | | 0.129 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-006

Radiochemistry

Lab Sample ID: F1F020455-006
 Work Order: MJ0C0
 Matrix: SOLID

Date Collected: 05/13/11 1025
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.182 | | 0.225 | | 0.174 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0399 | U | 0.107 | | 0.085 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.227 | U | 0.390 | | 0.290 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.392 | | 0.153 | | 0.071 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00523 | U | 0.0503 | 0.0700 | 0.040 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0583 | | 0.048 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0400 | U | 0.122 | | 0.096 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.00713 | U | 0.325 | | 0.266 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.0872 | U | 1.48 | 1.50 | 1.16 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.306 | | 0.105 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.571 | | 0.146 | | 0.057 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 9.10 | | 1.57 | | 0.468 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.00896 | U | 0.176 | | 0.144 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.392 | J | 0.153 | 0.700 | 0.071 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.161 | | 0.0575 | | 0.026 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.182 | | 0.225 | | 0.174 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.553 | U | 1.08 | | 0.806 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0297 | U | 0.227 | | 0.189 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-007

Radiochemistry

Lab Sample ID: F1F020455-007
 Work Order: MJ0C1
 Matrix: SOLID

Date Collected: 05/13/11 1030
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.204 | | 0.195 | | 0.132 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0539 | U | 0.0952 | | 0.074 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.148 | U | 0.333 | | 0.250 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.318 | | 0.125 | | 0.063 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00258 | U | 0.0513 | 0.0700 | 0.041 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.0148 | U | 0.0676 | | 0.053 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.00257 | U | 0.110 | | 0.090 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0 | U | 0.258 | | 0.213 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.172 | U | 1.13 | 1.50 | 1.01 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.378 | | 0.102 | | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.282 | | 0.115 | | 0.059 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 7.28 | | 1.51 | | 0.537 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0352 | U | 0.129 | | 0.103 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.318 | J | 0.125 | 0.700 | 0.063 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.226 | | 0.0631 | | 0.023 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.204 | | 0.195 | | 0.132 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.776 | U | 1.02 | | 0.833 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0704 | U | 0.246 | | 0.201 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-008

Radiochemistry

Lab Sample ID: F1F020455-008
 Work Order: MJ0C2
 Matrix: SOLID

Date Collected: 05/13/11 1035
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.220 | | 0.257 | | 0.175 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0197 | U | 4.62 | | 0.087 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.0790 | U | 0.457 | | 0.362 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.554 | | 0.162 | | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.0301 | U | 1.21 | 0.0700 | 0.061 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.0225 | U | 0.901 | | 0.034 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0379 | U | 0.122 | | 0.094 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0 | U | 0.444 | | 0.366 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.447 | U | 1.14 | 1.50 | 0.995 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.452 | | 0.131 | | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.464 | | 0.164 | | 0.072 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 8.25 | | 1.84 | | 0.224 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.00122 | U | 0.131 | | 0.108 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.554 | J | 0.162 | 0.700 | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.105 | | 0.0779 | | 0.051 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.220 | | 0.257 | | 0.175 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | -0.683 | U | 27.3 | | 1.03 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0847 | U | 0.196 | | 0.151 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.
 F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-009

Radiochemistry

Lab Sample ID: F1F020455-009
 Work Order: MJ0C3
 Matrix: SOLID

Date Collected: 05/13/11 1040
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.282 | | 0.274 | | 0.186 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0549 | U | 0.120 | | 0.095 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.315 | | 0.391 | | 0.258 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.473 | | 0.170 | | 0.082 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0263 | U | 0.0612 | 0.0700 | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0165 | | 0.019 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0169 | U | 0.142 | | 0.115 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0134 | U | 0.410 | | 0.336 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 1.06 | J | 1.33 | 1.50 | 1.00 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.308 | | 0.146 | | 0.075 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.719 | | 0.146 | | 0.068 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 7.33 | | 1.78 | | 0.645 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.00850 | U | 0.162 | | 0.132 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.473 | J | 0.170 | 0.700 | 0.082 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0369 | U | 0.0652 | | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.282 | | 0.274 | | 0.186 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.325 | U | 1.06 | | 0.917 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.149 | U | 0.277 | | 0.222 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-010

Radiochemistry

Lab Sample ID: F1F020455-010
 Work Order: MJ0C5
 Matrix: SOLID

Date Collected: 05/13/11 1045
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|---------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.525 | | 0.147 | | 0.053 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0434 | U | 0.0888 | | 0.069 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.299 | | 0.338 | | 0.236 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.406 | | 0.126 | | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.00454 | U | 0.0275 | 0.0700 | 0.021 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0102 | | 0.011 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0281 | U | 0.0895 | | 0.070 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0 | U | 0.254 | | 0.209 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.858 | U | 1.23 | 1.50 | 0.954 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.338 | | 0.115 | | 0.054 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.506 | | 0.104 | | 0.049 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 8.08 | | 1.44 | | 0.405 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.00842 | U | 0.113 | | 0.092 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.406 | J | 0.126 | 0.700 | 0.050 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0683 | | 0.0544 | | 0.038 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.525 | | 0.147 | | 0.053 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.741 | | 0.932 | | 0.720 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | -0.0165 | U | 0.208 | | 0.170 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-011

Radiochemistry

Lab Sample ID: F1F020455-011
 Work Order: MJ0C6
 Matrix: SOLID

Date Collected: 05/13/11 1050
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.170 | | 0.0931 | | 0.154 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0248 | U | 0.0962 | | 0.077 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.250 | | 0.319 | | 0.232 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.409 | | 0.115 | | 0.045 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00515 | U | 0.0461 | 0.0700 | 0.037 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0113 | | 0.013 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0324 | U | 0.0779 | | 0.058 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.0925 | U | 0.302 | | 0.231 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.363 | U | 1.40 | 1.50 | 1.26 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.319 | | 0.0964 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.538 | | 0.136 | | 0.059 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 6.84 | | 1.42 | | 0.499 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0962 | | 0.104 | | 0.075 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.409 | J | 0.115 | 0.700 | 0.045 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0702 | | 0.0518 | | 0.038 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.170 | | 0.0931 | | 0.154 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.273 | U | 0.964 | | 0.827 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.00659 | U | 0.169 | | 0.144 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-012

Radiochemistry

Lab Sample ID: F1F020455-012
 Work Order: MJ0C8
 Matrix: SOLID

Date Collected: 05/13/11 1055
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|---------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.181 | | 0.143 | | 0.086 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0539 | U | 0.0857 | | 0.066 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.0936 | U | 0.314 | | 0.245 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.461 | | 0.130 | | 0.048 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.00546 | U | 0.0404 | 0.0700 | 0.032 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0137 | U | 0.0565 | | 0.044 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0326 | U | 0.117 | | 0.093 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0197 | U | 0.333 | | 0.272 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.639 | U | 1.15 | 1.50 | 0.898 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.335 | | 0.121 | | 0.053 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.366 | | 0.102 | | 0.063 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 9.59 | | 1.52 | | 0.240 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0173 | U | 0.139 | | 0.113 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.461 | J | 0.130 | 0.700 | 0.048 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0671 | | 0.0473 | | 0.032 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.181 | | 0.143 | | 0.086 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.350 | U | 0.894 | | 0.713 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0983 | U | 0.178 | | 0.137 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

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Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.
 F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-013

Radiochemistry

Lab Sample ID: F1F020455-013
 Work Order: MJ0C9
 Matrix: SOLID

Date Collected: 05/13/11 1100
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|-----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Aotinium 228 | 0.230 | | 0.197 | | 0.143 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0679 | U | 0.101 | | 0.078 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.200 | U | 0.397 | | 0.300 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.279 | | 0.126 | | 0.081 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.000679 | U | 0.0514 | 0.0700 | 0.042 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.00676 | U | 0.0530 | | 0.042 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0446 | U | 0.118 | | 0.092 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0 | U | 0.0675 | | 0.078 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.173 | U | 1.48 | 1.50 | 1.29 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.318 | | 0.103 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.480 | | 0.134 | | 0.066 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.6 | | 1.70 | | 0.473 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0 | U | 0.143 | | 0.118 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.279 | J | 0.126 | 0.700 | 0.081 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0385 | U | 0.0576 | | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.230 | | 0.197 | | 0.143 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.992 | | 1.17 | | 0.831 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | -0.0247 | U | 0.676 | | 0.179 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

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Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.
 F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-014

Radiochemistry

Lab Sample ID: F1F020455-014
 Work Order: MJODA
 Matrix: SOLID

Date Collected: 05/13/11 1105
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|-----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.259 | | 0.186 | | 0.113 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.000487 | U | 0.0984 | | 0.081 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.230 | U | 0.342 | | 0.244 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.332 | | 0.130 | | 0.064 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0343 | U | 0.0540 | 0.0700 | 0.040 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0116 | U | 0.0526 | | 0.041 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0325 | U | 0.124 | | 0.098 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0189 | U | 0.355 | | 0.289 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.233 | U | 1.63 | 1.50 | 0.993 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.182 | | 0.0945 | | 0.067 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.419 | | 0.115 | | 0.070 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.3 | | 1.70 | | 0.346 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0294 | U | 0.111 | | 0.088 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.332 | J | 0.130 | 0.700 | 0.064 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0705 | | 0.0548 | | 0.039 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.259 | | 0.186 | | 0.113 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.457 | U | 0.917 | | 0.766 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0121 | U | 0.196 | | 0.165 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

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Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-015

Radiochemistry

Lab Sample ID: F1F020455-015
 Work Order: MJ0DC
 Matrix: SOLID

Date Collected: 05/13/11 1110
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|-----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.199 | | 0.208 | | 0.127 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0216 | U | 0.863 | | 0.112 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.306 | | 0.441 | | 0.301 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.290 | | 0.137 | | 0.065 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.00302 | U | 0.0702 | 0.0700 | 0.061 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.0236 | U | 0.942 | | 0.035 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0 | U | 0.151 | | 0.125 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.0362 | U | 0.580 | | 0.472 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.611 | U | 1.34 | 1.50 | 1.15 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.380 | | 0.125 | | 0.056 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.505 | | 0.151 | | 0.093 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.1 | | 2.10 | | 0.234 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.00257 | U | 0.110 | | 0.090 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.290 | J | 0.137 | 0.700 | 0.065 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0456 | | 0.0610 | | 0.044 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.199 | | 0.208 | | 0.127 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 1.03 | | 1.15 | | 0.921 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | -0.000744 | U | 0.205 | | 0.168 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

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Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-016

Radiochemistry

Lab Sample ID: F1F020455-016
 Work Order: MJ0DD
 Matrix: SOLID

Date Collected: 05/13/11 1115
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.186 | | 0.241 | | 0.171 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.0349 | U | 0.106 | | 0.084 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.247 | U | 0.428 | | 0.310 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.605 | | 0.154 | | 0.021 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0167 | U | 0.0585 | 0.0700 | 0.045 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.00689 | U | 0.0588 | | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0280 | U | 0.145 | | 0.116 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.00245 | U | 0.374 | | 0.308 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.236 | U | 1.33 | 1.50 | 1.07 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.344 | | 0.108 | | 0.052 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.627 | | 0.151 | | 0.041 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.1 | | 1.92 | | 0.323 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.0369 | U | 0.118 | | 0.093 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.605 | J | 0.154 | 0.700 | 0.021 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0361 | U | 0.0667 | | 0.052 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.186 | | 0.241 | | 0.171 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.454 | U | 1.01 | | 0.868 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0985 | U | 0.262 | | 0.213 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-017

Radiochemistry

Lab Sample ID: F1F020455-017
 Work Order: MJODE
 Matrix: SOLID

Date Collected: 05/13/11 1120
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Aotinium 228 | 0.517 | | 0.170 | | 0.031 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0451 | U | 0.0853 | | 0.066 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.126 | U | 0.379 | | 0.296 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.462 | | 0.147 | | 0.060 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00491 | U | 0.0422 | 0.0700 | 0.034 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.0 | U | 0.0107 | | 0.012 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.0268 | U | 0.125 | | 0.100 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.00484 | U | 0.338 | | 0.278 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 1.17 | J | 0.948 | 1.50 | 0.658 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.476 | | 0.110 | | 0.042 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.486 | | 0.122 | | 0.047 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 9.83 | | 1.58 | | 0.286 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.0569 | U | 0.144 | | 0.114 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.462 | J | 0.147 | 0.700 | 0.060 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0800 | | 0.0518 | | 0.034 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.517 | | 0.170 | | 0.031 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 2.07 | | 0.973 | | 0.480 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0665 | U | 0.156 | | 0.121 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

Data are incomplete without the case narrative.
 Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-018

Radiochemistry

Lab Sample ID: F1F020455-018
 Work Order: MJ0DG
 Matrix: SOLID

Date Collected: 05/13/11 1125
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-----------------|---------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | Batch # 1154137 | | Yld % | |
| Actinium 228 | 0.459 | | 0.171 | | 0.059 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.00542 | U | 0.109 | | 0.089 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.0180 | U | 0.385 | | 0.323 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.347 | | 0.132 | | 0.079 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | 0.0111 | U | 0.0449 | 0.0700 | 0.035 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.000504 | U | 0.0432 | | 0.035 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.000375 | U | 0.101 | | 0.083 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | 0.0855 | U | 0.301 | | 0.232 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.00699 | U | 1.34 | 1.50 | 1.23 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.260 | | 0.113 | | 0.064 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.413 | | 0.112 | | 0.063 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 8.40 | | 1.55 | | 0.524 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | 0.00126 | U | 0.124 | | 0.102 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.347 | J | 0.132 | 0.700 | 0.079 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0787 | | 0.0621 | | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.459 | | 0.171 | | 0.059 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.304 | U | 0.995 | | 0.846 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0779 | U | 0.213 | | 0.173 | 30 | 06/03/11 | 06/12/11 |

NOTE (S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-019

Radiochemistry

Lab Sample ID: F1F020455-019
 Work Order: MJ0DH
 Matrix: SOLID

Date Collected: 05/13/11 1130
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | | pCi/g | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.327 | | 0.146 | | 0.090 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | 0.0 | U | 0.0995 | | 0.081 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.193 | U | 0.311 | | 0.228 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.453 | | 0.111 | | 0.036 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00443 | U | 0.0430 | 0.0700 | 0.034 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | 0.000397 | U | 0.0376 | | 0.030 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | 0.0152 | U | 0.0886 | | 0.071 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.210 | U | 0.417 | | 0.318 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | -0.290 | U | 0.946 | 1.50 | 0.755 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.300 | | 0.102 | | 0.048 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.362 | | 0.127 | | 0.069 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 10.1 | | 1.54 | | 0.233 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.0788 | U | 0.146 | | 0.116 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.453 | J | 0.111 | 0.700 | 0.036 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0618 | | 0.0475 | | 0.033 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.327 | | 0.146 | | 0.090 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | 0.0217 | U | 0.645 | | 0.530 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.0156 | U | 0.199 | | 0.163 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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 U Result is less than the sample detection limit.

The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Tetra Tech EC, Inc.

Client Sample ID: 04A-DIA-020

Radiochemistry

Lab Sample ID: F1F020455-020
 Work Order: MJ0DJ
 Matrix: SOLID

Date Collected: 05/13/11 1135
 Date Received: 06/02/11 1305

| Parameter | Result | Qual | Total Uncert. (2 σ +/-) | RL | MDL | Count Time | Prep Date | Analysis Date |
|--------------------------------------|-----------|------|--------------------------------------|--------|-------|-----------------|--------------|------------------|
| Gamma Ra-226 & hits by EPA 901.1 MOD | | | pCi/g | | | Batch # 1154137 | Yld % | |
| Actinium 228 | 0.515 | | 0.175 | | 0.084 | 30 | 06/03/11 | 06/12/11 |
| Americium 241 | -0.000444 | U | 0.104 | | 0.085 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 212 | 0.158 | U | 0.384 | | 0.294 | 30 | 06/03/11 | 06/12/11 |
| Bismuth 214 | 0.486 | | 0.160 | | 0.071 | 30 | 06/03/11 | 06/12/11 |
| Cesium 137 | -0.00280 | U | 0.0571 | 0.0700 | 0.046 | 30 | 06/03/11 | 06/12/11 |
| Cobalt 60 | -0.0181 | U | 0.0699 | | 0.055 | 30 | 06/03/11 | 06/12/11 |
| Europium 152 | -0.00529 | U | 0.123 | | 0.101 | 30 | 06/03/11 | 06/12/11 |
| Europium 154 | -0.129 | U | 0.430 | | 0.336 | 30 | 06/03/11 | 06/12/11 |
| Lead 210 | 0.135 | U | 1.41 | 1.50 | 1.24 | 30 | 06/03/11 | 06/12/11 |
| Lead 212 | 0.327 | | 0.108 | | 0.060 | 30 | 06/03/11 | 06/12/11 |
| Lead 214 | 0.536 | | 0.139 | | 0.072 | 30 | 06/03/11 | 06/12/11 |
| Potassium 40 | 11.3 | | 1.79 | | 0.486 | 30 | 06/03/11 | 06/12/11 |
| Protactinium 234 | -0.0682 | U | 0.178 | | 0.142 | 30 | 06/03/11 | 06/12/11 |
| Radium (226) | 0.486 | J | 0.160 | 0.700 | 0.071 | 30 | 06/03/11 | 06/12/11 |
| Thallium 208 | 0.0619 | | 0.0678 | | 0.052 | 30 | 06/03/11 | 06/12/11 |
| Thorium 232 | 0.515 | | 0.175 | | 0.084 | 30 | 06/03/11 | 06/12/11 |
| Thorium 234 | -0.319 | U | 1.60 | | 0.935 | 30 | 06/03/11 | 06/12/11 |
| Uranium 235 | 0.168 | U | 0.224 | | 0.174 | 30 | 06/03/11 | 06/12/11 |

NOTE(S)

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The MDL is an estimate of the measured concentration at which there is a 99% confidence that a given analyte is given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F1F020455

Appendix P
Response to Comments Document

RESPONSE TO COMMENTS
DRAFT RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT, RADIOLOGICAL SURVEYS OF BUILDINGS AND GROUND SURFACES, AND
STORM DRAIN AND SANITARY SEWER REMOVAL
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Craig Cooper Superfund Project Manager US EPA Comments dated: November 12, 2013 | |
|---|--|
| Specific Comments | Response |
| <p>Comment 1. General Comment.</p> <p>It is EPA understanding that the Navy’s radiological removal actions in Parcel D-1 are still ongoing and the subject Rad-RACR is only for the “Phase 1” portion of Parcel D-1. If this is the case, please rename the title of the subject report and insert a map in the Figures section identifying portions of Parcel D-1 that are specifically addressed by the subject report.</p> | <p>Response 1.</p> <p>Agree. The Navy is currently completing radiological activities in Parcel D-1 as part of a second phase of work. The following changes have been made to the document to clarify that this report documents only Phase 1 of the work activities:</p> <ul style="list-style-type: none"> • Added “Phase 1” to the title and signature pages • Revised Figure 1 to differentiate between Parcel D-1 Phase 1 and Phase 2 areas |
| <p>Comment 2. Section 3.1.2, Unrestricted Radiological Release Criteria.</p> <p>The report makes reference to a radiation dose rate of 15 millirem per year without attribution to any authoritative source. EPA’s primary requirement for radiological cleanups is achievement of CERCLA’s acceptable risk management range of 10-4 to 10-6 risk. EPA agrees that the final status surveys summarized in this report achieve this CERCLA requirement.</p> | <p>Response 2.</p> <p>The following sentence has been added to Section 3.1.2 to clarify the reference for the 15 millirem per year: “...were ALARA. <u>Per U.S. Environmental Protection Agency (EPA; 1997), the 15 mrem/yr limit equates to approximately 3E 04 increased lifetime risk.</u> This...” The EPA, 1997 reference was also added to the references in Section 13.</p> |
| <p>Comment 3. Section 3.1.5, Dose and Risk Modeling.</p> <p>The Report makes reference to a “Building Occupancy” for application of the RESRAD-Build v3.3 model to building surface contamination release criteria and to the resident farmer scenario for application of the RESRAD v6.3 to soil contamination release criteria. However, it appears that the</p> | <p>Response 3.</p> <p>The values listed in Table 2 are reproduced from the <i>Final Removal Action Action Memorandum</i> (Navy, 2006), which describes the development of the project criteria. Section 3.1.5 describes the process used to conduct dose and risk modeling to determine dose and risk values from final status survey data. The</p> |

RESPONSE TO COMMENTS
DRAFT RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT, RADIOLOGICAL SURVEYS OF BUILDINGS AND GROUND SURFACES, AND
STORM DRAIN AND SANITARY SEWER REMOVAL
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Craig Cooper Superfund Project Manager US EPA Comments dated: November 12, 2013 | |
|--|--|
| Specific Comments | Response |
| values that are presented in Table 2 were derived from the U.S. EPA's PRG calculator. Please revise the report to reconcile those statements with other statements in the report and with the footnotes in Table 2. | dose and risk modeling results, along with the comparison of sampling and survey measurements with the criteria listed in Table 2, were used to demonstrate suitability of the project areas for radiological release. No changes have been made to the text. |
| Comment 4. General Comment. The report does not discuss soil, debris and material disposal. Please revise the subject report to identify the final disposition of the soil, debris and other material that was removed and disposed as part of the response actions described in the subject report. | Response 4. Details regarding the final disposition of soil and debris (including quantities of remediated soil) are provided in the discussions of removal action activities for specific trenches or areas in Sections 4 through 9 of the report. Final disposal at an appropriate waste disposal facility is handled under a separate Navy contract. Waste load-out is partially still ongoing. Therefore, final disposal details were not included in this Radiological Removal Action Completion Report (Phase 1) and will instead be covered under a separate transport and disposal report. The following two sentences were added to the last paragraph of the 1.0 Introduction: <u>"The majority of transport and disposal of non-radiological waste was conducted under a separate HPNS base-wide waste disposal contract over-seen by the Navy. Waste disposal was not included as part of CTO 0006."</u> |

RESPONSE TO COMMENTS
DRAFT RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT, RADIOLOGICAL SURVEYS OF BUILDINGS AND GROUND SURFACES, AND
STORM DRAIN AND SANITARY SEWER REMOVAL
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| <p>Comments from Ryan Miya, Ph.D. Senior Hazardous Substances Scientist San Francisco Peninsula Team Leader Brownfields and Environmental Restoration Program - Berkeley Department of Toxic Substances Control</p> <p>Comments dated: December 5, 2013 (received via email on December 10, 2013)</p> | |
|---|--|
| General Comments | Response |
| <p>Comment 1. General Comment</p> <p>Please consider modifying the document title to reflect that the current Draft Radiological RACR documents the radiological surveys and remediation that were performed only in the northern half of Parcel D-1 (Phase I) so as to differentiate it from the forthcoming Draft Radiological RACR for the southern half of Parcel D-1 (Phase II)</p> | <p>Response 1.</p> <p>Agree. The title to the subject report has been revised to reflect that only Phase 1 of the Parcel D-1 radiological remediation activities are documented.</p> |
| <p>Comment 2. General Comment</p> <p>The text and figures throughout the document reference Parcel D-1, but it is not clear which specific areas, buildings, and building sites are included in this Phase I work. Are those areas and features identified in the document as Parcel D-1 all within the northern portion of the parcel and Phase I work or are the discussions in this current document about Parcel D-1 in fact about Parcel D-1 features in its entirety? Clarification and delineation of the two phases of work in figures and text would be very helpful.</p> | <p>Response 2.</p> <p>Figure 1 has been revised to show Phase 1 and Phase 2 areas within Parcel D-1.</p> |
| <p>Comment 3.</p> <p>Please include all CDPH-EMB radiological unrestricted release recommendation (RURR) memoranda received to date on the pertinent buildings and building sites that were addressed as part of the Phase I work as an appendix to the Draft Radiological RACR.</p> | <p>Response 3.</p> <p>Agree. All RURR memoranda received to date (all areas except Gun Mole Pier which is still pending at the time of issuance of this Radiological Removal Action Completion Report, Phase I) have been attached to the report as Appendix N (Radiological Unrestricted Release</p> |

RESPONSE TO COMMENTS
DRAFT RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT, RADIOLOGICAL SURVEYS OF BUILDINGS AND GROUND SURFACES, AND
STORM DRAIN AND SANITARY SEWER REMOVAL
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Ryan Miya, Ph.D. Senior Hazardous Substances Scientist San Francisco Peninsula Team Leader Brownfields and Environmental Restoration Program - Berkeley Department of Toxic Substances Control | |
|---|--|
| Comments dated: December 5, 2013 (received via email on December 10, 2013) | |
| General Comments | Response |
| | Recommendations for Parcel D-1 [Phase 1]). A fly sheet for the RURR memorandum for Gun Mole Pier was added as a place holder in preparation for issuance of the specific Gun Mole Pier RURR. |
| <p>Comment 4. Section 3.2.9 - Import Fill</p> <p>The data verifying the quality of the backfill materials used should either be referenced in Table 5 (for each ESU) or provided in a separate appendix to the report (import fill). In addition, the last sentence in this section appears to be incomplete. Please correct accordingly.</p> | <p>Response 4.</p> <p>The clean import fill data have been included with the report as Appendix O. The last paragraph in Section 3.2.9 has been revised to read as follows: "... ..was identified as "Jericho" soil in the SUPRA SSSD. <u>The data for the import fill material is presented in Appendix O.</u> Table 5 identifies the specific backfill material used in each trench SU and indicates whether the import fill from an offsite source <u>was used or incorporated into</u> <u>in addition to radiologically screened soil as the</u> backfill material.</p> |
| <p>Comment 5. Section 9.1 – Backfilling and Compacting</p> <p>(a) All of the data, including non-radiological analyses, verifying the quality of the backfill materials should be included as an appendix in the report, for each ESU as well as "Jericho" soil.</p> <p>(b) Third paragraph. A brief explanation should be provided in order to explain the technical basis for not conducting a final topographic survey after backfilling and compacting completion (e.g. A final sitewide topographic survey will be done at a later time after the non-radiological portion of the remediation is completed). The same comment also applies to the identical text presented again in Section</p> | <p>Response 5.</p> <p>(a) Data for backfill soil have been provided in the individual final trench survey unit reports referenced in Appendices H through L, and in Appendix O. Please also refer to Comment 4.</p> <p>(b) Section 9.1 paragraph 3 has been revised to read as follows: "...drainage. A final topographic survey was not performed <u>upon backfill placement due to additional post-remediation activities to be performed, including final placement of crushed asphalt and eventually a durable cover under a separate Navy contract.</u> When..."</p> |

RESPONSE TO COMMENTS
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PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Ryan Miya, Ph.D. Senior Hazardous Substances Scientist San Francisco Peninsula Team Leader Brownfields and Environmental Restoration Program - Berkeley Department of Toxic Substances Control Comments dated: December 5, 2013 (received via email on December 10, 2013) | |
|--|--|
| General Comments | Response |
| 12.2. | |
| Comment 6. Section 9.2 – Asphalt Placement. First sentence. Please describe what is meant by the statement that the radiologically-cleared asphalt was “used as a final step during site restoration” as the current presentation is unclear. | Response 6. The first sentence of Section 9.2 was revised to read as follows: “ <u>The final step of site restoration was placement of asphalt that was removed from the area during the removal action, radiologically cleared, and crushed.</u> ” |
| Comment 7. Section 9.3 – Temporary Swale Construction. Please add and subsequently reference a figure that presents the location(s) and flow direction(s) of the onsite temporary swale(s). | Response 7. The requested figure has been added as Figure 6. |
| Comment 8. Section 9.4 – Demobilization. Please reference the location of both the premobilization initial radiological surface scan survey and the demobilization scan survey. If not included, this information should be included as an appendix to the Draft Radiological RACR. | Response 8. Gamma scanning data from both the pre-mobilization and demobilization surveys were compared with instrument-specific investigation levels to identify potential contamination. The referenced surveys were performed in accordance with Shaw NRC license procedures as in-process surveys. These surveys were intended to identify above IL readings and, in some cases, data were therefore not logged and are subsequently not available for reporting. The text in Section 9.4 paragraph 4 has been revised to read as follows: “Data obtained from the pre-mobilization initial radiological surface scan survey were compared to the data collected during and the <u>demobilization scan survey were compared with the instrument-specific</u> |

RESPONSE TO COMMENTS
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PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Ryan Miya, Ph.D. Senior Hazardous Substances Scientist San Francisco Peninsula Team Leader Brownfields and Environmental Restoration Program - Berkeley Department of Toxic Substances Control Comments dated: December 5, 2013 (received via email on December 10, 2013) | |
|--|---|
| General Comments | Response |
| | <u>investigation levels</u> to ensure that radioactive materials were not relocated or additional radioactive contamination had not been introduced to the site. <u>The evaluation</u> of scan survey data ...” |
| Comment 9. Section 12.3 – Recommendations. Please verify if the recommendations presented for radiological free-release are pertinent to the Phase I implementation. In addition, please clarify that the recommended radiological free-release surveys for the remaining areas within Parcel D-1 are currently taking place as a part of the Phase II implementation. | Response 9. The recommendations presented for radiological release are relevant to the Phase 1 activities only. The text has been revised to read: “Process radiological free-release for the following areas and sites <u>included in the Parcel D-1 Phase 1 removal activities</u> : <ul style="list-style-type: none"> • Building 274 • Building 383 Area footprint • Former Building 313, 313A, and 322 Sites • GMP • South Pier • SD and SS system in WAs 24, 25, 28, 29, and 30 Conduct radiological free-release surveys for remaining areas within Parcel D-1 including the NRDL site, remaining adjoining |

RESPONSE TO COMMENTS
DRAFT RADIOLOGICAL REMOVAL ACTION COMPLETION REPORT, RADIOLOGICAL SURVEYS OF BUILDINGS AND GROUND SURFACES, AND
STORM DRAIN AND SANITARY SEWER REMOVAL
PARCEL D-1, HUNTERS POINT NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

| Comments from Ryan Miya, Ph.D. Senior Hazardous Substances Scientist San Francisco Peninsula Team Leader Brownfields and Environmental Restoration Program - Berkeley Department of Toxic Substances Control Comments dated: December 5, 2013 (received via email on December 10, 2013) | |
|---|---|
| General Comments | Response |
| | berths and remove SD and SS systems in WA 13 (Phase 2).” |
| Comment 10. Figure 3 – Project Schedule. This schedule should be updated accordingly. | Response 10. The updated final Phase 1 schedule has been included with the Final RACR. |
| Comment 11. Appendix B – Air Monitoring Report. While the current presentation provides a summary of the air monitoring sampling and laboratory methods utilized, please consider expanding the air monitoring report to include a brief summary of the results obtained over the course implementation for each analyte (TSP, Mn, Pb, PM10, and asbestos). | Response 11. A brief summary of the air monitoring results from air monitoring performed over the course of the project is provided in Section 3.2.1.9. No further edits were made to the text. |